Expanding School Counseling: The Impacts of California Funding Changes

Daniel Sparks[1] Christine Mulhern[2] *

October 11, 2024

Abstract

Counselors are a common school resource for students navigating complicated and consequential education choices. However, most students have limited access to school counselors. We study one of the largest U.S. policies to increase access to school counselors - California's Supplemental School Counseling Program. The program increased the average number of counselors per high school by 0.7 and reduced student to counselor ratios by over 150 students. Counselors hired as a result of the program had less experience on average. The expansion of counseling had positive effects on high school graduation and public college enrollment rates as well as on student perceptions of school climate. Impacts on college enrollment were largest in high poverty and rural schools. Thus, expanding access to counselors may help schools address equity gaps in college access and concerns over students' mental health.

*1. University of Pennsylvania jspar@upenn.edu, 2. RAND Corporation, cmulhern@rand.org . We thank Randy Reback for alerting us to this topic and helpful discussions. We thank Sarah Cohodes, Judy Scott-Clayton, Kevin Dougherty, Ashley Kranz, Umut Özek and seminar participants at Columbia University, Sciences Po, AEFP, APPAM, SOLE, and CESifo for helpful feedback. We are also grateful to the California Department of Education and Jonathan Isler for assistance with the data and to Patrick Lapid for providing data on California college enrollment rates. This study is supported by grant 1R03MH132119-01A1 from the National Institute of Mental Health. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

1 Introduction

School counselors can be important resources for students, helping them navigate educational options, develop social and emotional skills, and succeed in and beyond school (Carrell & Hoekstra, 2014; Mulhern, 2023; Reback, 2010). Despite their potentially important role, most students have limited access to counselors. On average, public school counselors serve over 400 students per year and typically spend only a few hours with each student. Recently, there has been a push at federal and state levels to increase funding for and access to school counselors. For instance, many states used some of their Federal COVID-19 relief funding to hire more counselors, and California is pushing to double its number of school counselors (Modan, 2022; Prothero & Riser-Kositsky, 2022). However, little research examines how to effectively design policies for expanding access to school counseling and the impacts of expanded access to school counselors on students.

We study one of the largest policies to increase funding for school counselors. Starting in 2006, California's Supplemental School Counseling Program provided block grants totaling $200 million to schools to support increased access to middle and high school counselors. The legislation required the funds "supplement, and not supplant expenditures" for school counseling programs, and "provide supplemental counseling services delivered by personnel who hold a valid pupil personnel services credential" (Supplemental School Counseling Program, 2007). Over 1,000 additional counselors were hired in the first two years of the program, and student-to-counselor ratios fell precipitously. In 2009, the spending guidelines were eliminated and the number of counselors on staff declined (California Department of Education, undated). Such investments could improve student outcomes by increasing access to counselors, however, the rapid hiring of counselors may have had negative effects if it pulled less qualified counselors into the profession (Jepsen & Rivkin, 2009; Mulhern, 2023).

We study the funding, equity, and achievement implications of the funding expansion. We use student, school, and educator data from the California Department of Education to study how schools responded to the policy and funding changes, and the subsequent impacts on student outcomes. Overall, we find that schools used the funding to hire more school counselors, with the average high school hiring 0.7 additional counselors with the funding. This represented an aver-

age reduction in counselor's caseloads of over 150 students. Schools in non-rural areas and those serving a larger student body were most likely to hire counselors. We also find that the program funding reduced average counselor experience by about three years and that less experienced counselors were most likely to be let go after the policy ended.

We use an event study design to examine how student outcomes changed when the policy was implemented. We leverage variation over time and across schools to compare outcomes for cohorts of students that were and were not exposed to the increase in counselor funding. We find that increased funding for counselors led to a 3 percentage point increase in high school graduation rates for students. Effects on high school exam pass rates are mixed, with improvements in math scores apparent a few years after initial policy implementation. College enrollment rates also increased, with the largest changes at University of California schools and community colleges. Concurrent declines at California State University schools may indicate that counselors shifted inframarginal students to attend different types of institutions. Furthermore, we find that increased funding for school counselors led to substantial improvements in students' perceptions of school climate and sense of belonging, which could impact academic achievement (Berkowitz et al., 2016).

The program had larger effects on low income students and in high poverty and rural schools. Pass rates on the high school exit exams increased by 3.5 percentage points for low income students and 3.1 percentage points for Black or Hispanic students. In addition, public college enrollment increased by three percentage points in high poverty schools and eight percentage points in rural schools. At low poverty schools, expanding access to counseling appears to have shifted some students towards attending more selective public colleges. These results are consistent with research on high school counselors in other settings and with the general goals of the program (Mulhern, 2023; Supplemental School Counseling Program, 2007).

This is the first study to examine the effects of a large-scale investment in school counselors on student outcomes. While there is extensive literature about the importance of school spending on student outcomes (e.g., Jackson, Johnson, & Persico, 2016; Lafortune, Rothstein, Schanzenbach, 2018), relatively little is known about the effects of investments in particular school resources. This

is especially true in the context of school counselors. There is extensive literature about the effects of large-scale investments in school inputs such as classroom teachers and class size (e.g. Chetty, Friedman & Rockoff, 2014; Fredriksson, Ockert & Oosterbeek, 2013; Krueger, 1999), yet very little is known about the effects of similar large-scale investments in school counselors.

Understanding the impact of investments in school counseling is particularly important given the recent evidence on the impacts of school counselors on educational attainment (Mulhern, 2023). There is some evidence that expanding access to elementary and middle school counselors improves behavior and test scores for subgroups of students (Carrell & Hoekstra, 2014; Reback, 2010). However, these papers focus on small policy changes for counselors with very large caseloads. One of them focuses on hiring counseling interns to lower caseloads and neither study high school students, for whom we may expect counselors to be especially important.

While some papers examine the importance of high school counselor caseloads, estimates from these papers are very noisy and subject to important limitations (Hurwitz & Howell, 2014; Mulhern, 2023). Hurwitz & Howell (2014) leverage minimum counseling ratios in 12 states in a regression discontinuity design and find large (but noisy) effects on four-year college enrollment, though they are unable to measure impacts on other student outcomes. Mulhern (2023) looks at smaller changes in caseloads in Massachusetts using year to year variation in the number of counselors and students within schools. She finds limited changes in student outcomes associated with changes in counseling ratios, but it is unclear if these estimates are causal and if larger changes may be associated with larger changes in access to school counselors. There are also many papers which document a negative correlation between counselor caseloads and academic achievement (e.g., Gagnon & Mattingly, 2016; Lapan, Whitcomb & Aleman, 2012; Woods & Domina, 2014). However, it is unclear if these estimates simply pick up on the fact that higher resourced schools, with students from higher income backgrounds, tend to have counselors with smaller caseloads.

School counselors may also be an important resource for improving school climate. While the empirical literature evaluating counselor effects on school climate is thin, prior studies highlight the positive relationship between school climate and students' academic outcomes (e.g., Berkowitz et al., 2013; Thapa, et al., 2013), though it remains unclear if this relationship is causal (Benbenishty

et al., 2016; Kraft, Marinell, Shen-Wei Yee, 2016). We build on this work by providing some of the first causal evidence of how expanding spending on and access to high school counselors impacts perceptions of school climate, student achievement and educational attainment.

Finally, this work builds on studies such as Jepsen & Rivkin (2009) which study the general equilibrium effects of large scale public policies. Since we study a statewide policy change, rather than an increase in the number of counselors in a few schools, our estimates account for how such a large policy may change the types of counselors to which students have access. These results hold timely recommendations for policymakers as schools look for ways to reduce equity gaps in college access and address student mental health concerns coming out of the COVID-19 pandemic.

The paper proceeds as follows. Section 2 discusses the background and conceptual framework. Section 3 presents the data and section 4 describes the empirical approach. Section 5 presents the results and section 6 includes a discussion. Section 7 concludes.

2 Background and Conceptual Framework

2.1 Policy Background

An influential 2006 report on California Educational Opportunity called out the state's declining performance in terms of both high school graduation and college access relative to other states (Rogers et al., 2006). In the early 2000s, less than a third of high school graduates in California matriculated to a four-year college and the list of contributing factors included disparities in access to quality teachers, limited access to rigorous curriculum, and lack of adequate (or any) college advising, as highlighted by California's average student to counselor ratio in excess of 500 to 1. Declines in the percentage of students enrolling in California State Universities (CSU) and University of California (UC) schools were a concern for policymakers, who turned their attention to school counselors, among other things, as a potential remedy for improving college access and reducing persistent racial equity gaps (Rowell et al., 2008).

California State Assembly Bill 1802 established the Supplemental School Counseling Program (SSCP) in 2006 to make available additional state funds for districts to spend on school coun-

selors. Funds were allocated based on reported enrollment and had to be used specifically for school counseling programs. Funds from the SSCP could not supplant extant school district expenditures on counselors or be used on non-counseling inputs (Supplemental School Counseling Program, 2007). Districts that opted to receive program funds were required to ensure that all students had access to a school counselor and received individualized reviews of academic and career goals (Supplemental School Counseling Program, 2007). Other notable provisions of the program include the requirement for districts receiving funds to develop a high school transition and college preparation curriculum and ensure that students meet with a school counselor at least once during grades 7, 10 and 12 (Supplemental School Counseling Program, 2007). The program stipulated that counseling services be prioritized for students at risk of failing out of school or who had already failed the California State High School Exit Exam (CAHSEE).

The policy contained limited restrictions for school district receipt of funds or accountability, and more than 90 percent of districts received SSCP funding prior to program termination. Funding allocations were based on student enrollment, with the total annual SSCP funding of $200 million working out to $79 in additional per student spending for counseling services. While the money had to be used on counseling services, schools took a number of approaches to spending SSCP funds. For instance, some districts used funds to hire new counselors while others used the money to increase counseling services specifically for students at-risk of dropping out. With regard to accountability, the California Department of Education asked school districts to provide an annual report including data on relevant student outcomes and metrics on student-to-counselor interactions, but receipt of funds or funding amount was not dependent on year-over-year results presented in these reports (Zubko, 2010).

Both the policy stakeholders who advocated for the law and the law itself indicate that the SSCP targeted lowering student-to-counselor ratios as a means of improving high school graduation rates, college preparation, and matriculation to California colleges and universities, decreasing persistent equity gaps in college access, and improving school climate. This study examines whether the legislation achieved its intended goals and how the school counseling workforce changed during this time period.

2.2 Conceptual Framework

Successfully navigating the college application process requires a tremendous amount of information, preparation, and advising to complete, for instance, FAFSA applications, requisite standardized tests, essays and college applications (Dynarski, Page, & Scott-Clayton, 2022). Complexity in the college application process may disproportionately act as a barrier to college access for low-income students and students of color in the US in spite of these student groups' comparable expectations on college-going with their white, higher-income peers (Perna & Titus, 2005). Similarly, information constraints are more likely to bind for students that lack access to social and cultural capital that can support students as they navigate their academic and professional plans post-high school (Dynarski, Page, & Scott-Clayton, 2022; Dynarski et al., 2021; Hoxby & Turner, 2013; Mulhern, 2021). Since the SSCP offered additional funding for school counselors, we anticipate that the program reduced student-to-counselor ratios and increased students' likelihood of having any interactions with a counselor as well as the quality of interactions.

The SSCP required any newly hired counselors to be licensed, so the quality of counselors and counseling sessions may have improved as a result of increased funding. However, the policy could also have led to the hiring of less experienced counselors since it was unclear whether there was sufficient supply of high quality counselors to meet the rapid growth in demand spurred by the policy. While funds received from SSCP had to be spent on counseling services, school districts had discretion in hiring decisions, which in turn is likely to impact variation in effect sizes on outcomes of interest.

Since the policy was designed to prioritize support for students at-risk of dropping out or failing the CAHSEE, we expect to find reductions in achievement gaps and improvements in the percentage of students scoring proficient on the exit exam. The high school class of 2006 was the first cohort required to pass the exit exam in order to graduate. These students would have first taken the exam as 10th graders in spring 2004. Thus, three cohorts of 10th graders took the exam before the SSCP was implemented. If a student failed one or multiple sections of the exam during their sophomore year, they were allowed to retake failed sections of the exam in subsequent years. Per language in SSCP legislation, school counselors were encouraged to help

at-risk students enroll in or retake exit exams and may also have informed or reminded students of the requirement to pass exit exams in order to graduate from high school.

Upticks in high school exit exam pass rates as a result of reduced student-to-counselor ratios should in turn boost high school graduation rates. Exit exams were a key barrier to high school graduation up until 2015, when California passed legislation to remove the exit exam as a requirement for high school graduation. Since counselors' effects on high school graduation were likely to be predominantly through their impacts on the high school exit exams or other interventions early in high school, the effects of SSCP on high school graduation rates may not be apparent until a few years after the program started and the first cohorts of exposed 9th and 10th graders had time to graduate. Therefore, we focus on how high school graduation rates vary based on the year in which students were in tenth grade (the same year students take the CAHSEE).[1]

While the implementation of high school exit exam requirements could potentially lead to improvements in student achievement (e.g., by motivating students), a rigorous study by Reardon et al. (2010) found that California's exit exam requirement for graduation did not lead to meaningful changes in course-taking, achievement or high school graduation for students near the passing threshold. Thus, it is unlikely that the change in CAHSEE requirement drives the positive impacts we document. If anything it may bias our estimates downward.

We further anticipate reduced student-to-counselor ratios to boost the percentage of students completing college preparatory exams such as the SAT since counselors can help to notify students of these exams, help register them, and provide fee waivers. Expanded access to counseling may improve student test scores if expanding counselors' capacity helps counselors better assign students to appropriate courses, provide accommodations, or support student needs that can impact learning. Unfortunately, the SAT changed in 2006, adding the writing section and substantially lengthening testing time. Since this change coincided with the timing of the SSCP it may be difficult to separate the effects of the SSCP on SAT-taking from the effects of lengthening the SAT.

[1] In other words, when estimating treatment effects on high school graduation, we focus on the 10th graders first treated by the SSCP as the first treatment cohort rather than the 12th graders. This is because the 12th graders took the CAHSEE exam and had most of the high school experiences that would influence graduation prior to when the SSCP funding arrived. Furthermore, SSCP implementation coincided with the first year in which the graduating cohort was expected to pass the exam in order to graduate, so we expect estimates for this year to include changes beyond the CAHSEE.

Since the SAT change may have led some students to take the ACT instead, we look at combined SAT and ACT taking and encourage interpreting these results with caution.

Counselors also provide students guidance around their postsecondary education options, and prior research has found that counselors influence whether and where students attend college (Mulhern, 2023; Hurwitz & Howell, 2014). Thus, we anticipate that the SSCP may have increased college enrollment and potentially shifted the types of institutions that students attended.[2]

Finally, we anticipate that the SSCP improved school climate. Counselor responsibilities are varied and extend well beyond activities related to college preparation. Meeting with students experiencing social and emotional issues is a core part of counselors' job description. Greater counselor availability could improve the number and quality of interactions with students, which could help counselors provide more targeted or individualized interventions. Both of these counselor effects should improve mental health resources available for students and school climate outcomes, which may contribute to increases in observed academic outcomes.

3 Data

We construct a school-by-year level data set using publicly available data from the California Department of Education (CDE). CDE data include school enrollment by grade, race and gender, staff assignments and demographics, school financial records, and high school outcomes data. We also have student-level data on high school student exit exam scores and student demographics from 2003-04 to 2012-2013 school years. From staff assignment and demographic data, we are able to identify the number of counselors at each school and further disaggregate this information by race/ethnicity, gender, and years of professional experience as a counselor both within the district and overall. School finance data include detailed records on school revenues and expenditures broken down by specific function and goals as reported through the Standardized Account Code Structure (SACS). This includes year-over-year school expenditures on, for instance, guidance and counseling services overall as well as expenditures made specifically through the Supplemental

[2]For these outcomes we focus on 12th grade cohorts since we expect counselors' advising and influence on postsecondary education to happen later in high school than their effects on high school graduation.

School Counseling Program.

Our main high school academic outcomes of interest are high school graduation rates and California High School Exit Exam (CAHSEE) pass rates and scores on the Math and English Language Arts (ELA) sections. The CAHSEE exam was standardized each year so the scores are comparable over time. We have student level data on the CAHSEE exams but the other outcomes are all measured at the school level. Given concerns around the timing of changes made to the SAT, we present results for SAT and ACT test-taking rates in the appendix. [3]

We also use a panel dataset of public high schools in California constructed by Lapid (2017) to capture the share of high school graduates who enroll in a California community college (CC), California State University (CSU), or University of California school (UC). These data were collected by the California Postsecondary Education Commission (CPEC) until the agency's funding was disbanded in 2011. Lapid (2017) was able to construct the dataset up through 2009 using access to a data archive on the California Community College Chancellor's Office website that is no longer maintained. [4]

To measure school climate, we use student-level data from the California Healthy Kids Survey. Many schools in California administer the survey biannually to 5th, 7th, 9th, and 11th grade students. We focus on responses for 9th and 11th graders at schools which administered the survey in at least one of our sample years prior to the SSCP (2003 to 2005) and one treatment year (2007 or 2008). We focus on responses to survey questions related to caring-staff relationships, school connectedness, and delinquency since these appear most related to school counselors' roles. We construct indices of student responses based on the constructs and weights recommended and validated by Mehecha and Hanson (2020).[5] We standardize each index so that all estimates are in

[3]Since SAT and ACT test-taking rates are measured at the school level rather than the individual level we are unable to see whether the total number of students taking any college admissions exam changes. Instead this measure captures the number who took the SAT plus the number who took the ACT, and students who took both exams will be double counted. These results can be found in the appendix and should be interpreted with caution.

[4]These data omit college enrollment information for about 10 percent of schools in our analytic sample. We describe differences in student demographics and outcomes for high schools with and without college enrollment data in the appendix. Table A.1 summarizes how our sample varies when omitting these schools.

[5]We exclude the academic motivation index and promotion of parental involvement because the measures which comprise it were not included in the survey during our sample years. Not all questions for each index were asked in our sample year so some indices are only based on a subset of the measures in Mehecha and Hanson (2020). For students who are missing responses to component(s) of the index we take the weighted average of the nonmissing responses.

terms of standard deviations. Table A.2 summarizes the survey questions included in each index.

3.1 Sample

Our main analytic sample focuses on students enrolled in California high schools from 2003-04 to 2012-13.[6] Our focal measures of student outcomes are at the high school level, so we exclude middle schools from our main results. Many schools had no counselors on staff, which prohibits us from calculating baseline student-to-counselor ratios for these schools. We limit our preferred analytic sample to schools with non-zero counselors to address this issue and include summary statistics and main results for excluded schools in the appendix (see table A.3 and figure A.1). We also omit Los Angeles Unified School District from our analysis due to reporting errors described in Appendix B.

Table 1 shows high school student demographics and relevant outcomes over time for more than 1,000 high schools included in our sample. This covers approximately 1.4 million students per year. Over our sample period average high school enrollment declined from 1,589 in 2003 to 1,376 in 2012. The share of Hispanic students increased by 10 percentage points over this same time period while the share of White students declined. The share of students receiving free or reduced-price lunch (FRPL) increased by 19 percentage points. High school graduation rates declined slightly after 2006, likely due to the new requirement for students to pass the CAHSEE exam to graduate high school. SAT and ACT test-taking increased over this time while high school exit exam pass rates in ELA and math saw marginal gains.

Our student-level sample for analyses of the CAHSEE exam include all 10th grade students in California public schools between 2003-04 and 2010-11 who have a valid CAHSEE exam record from 10th grade.[7] This sample includes 2.8 million students, but we primarily focus on the 2.1 million students in tenth grade between 2003-04 and 2008-09. The same restrictions apply for which schools/districts are included as with the school level sample.[8]

[6] We refer to school years based on the fall term. For instance, the 2006-2007 academic year is referred to as 2006.

[7] Due to data limitations, we do not track students across grades or exam CAHSEE exams in other grades.

[8] Thirteen schools in our school-level sample do not match to anyone in our student-level data. Students in these thirteen schools were likely removed from the sample during the data cleaning process (e.g., because they were missing student IDs or had too many duplicate observations in a given year.)

Table A.4 also summarizes the 416 schools and 922,223 students in our sample for the California Healthy Kids Survey. Since not all students and schools administered the survey, this sample is smaller and slightly different from our main sample. In particular, students and schools in this sample are more likely to be Asian, in urban areas, and to have higher achievement levels as measured by the CAHSEE exam scores and high school graduation rates than students in the main sample. We limit our sample to schools in which the survey was administered in at least one study year prior to the SSCP (2003-2005) and one year after initial SSCP implementation (2007-2008). Schools included in the survey sample vary slightly from year to year and response rates within schools may also vary over time. Table A.5 shows how characteristics of the survey respondents vary over our study period. To address some of this variation, we include school fixed effects and control for student demographics (age, race/ethnicity, and gender).

3.2 Counselor Spending and Characteristics

We first describe how schools responded to SSCP funding and whether the legislation had its intended effects on access to school counseling. In 2006, 88 percent of the districts in our sample received SSCP funds; this jumped to 95 percent of districts in 2007 and fell to 77 percent in 2008. Table 2 shows the difference in high school student demographics and outcomes for districts that used SSCP funds versus those that did not.[9] Compared to the relatively few districts that did not use SSCP funds, districts that participated in the program were less likely to be located in rural areas, served a lower percentage of students eligible for free or reduced price lunch, and had higher SAT participation rates and public college going rates. Districts that used SSCP funds also had significantly larger student-to-counselor ratios despite having more experienced counselors and total counselors on staff, which in part reflects the larger average school size in districts that took up SSCP funds.

In our sample, average district expenditures on guidance counseling increased by about a quarter of a million dollars as a result of SSCP. Figure 1a shows that districts spent over $1.5 million on average during SSCP program years before declining in 2010. Similarly, Figure 1b

[9] Table A.6 shows the numbers for all schools, including those not in our analytic sample.

shows that total counseling expenditures increased by about $200 million before dropping off in 2010. The vast majority of counselor spending overall and through SSCP goes toward salaries and health benefits (see figure A.2).

Overall, the increase in spending was associated with an increase of roughly 1,000 counselors in California and a reduction of student-to-counselor ratios by nearly 100 students per counselor.[10] Per Figure 2, the number of counselors stagnated after program termination, and counselor ratios increased. This increase in counselor hiring also led to a shift in the demographics and employment characteristics of school counselors. Figure 3 shows that counselors hired during SSCP program years were slightly more likely to be Hispanic and less likely to be White.[11] In addition, the proportion of tenured counselors declined from 70 percent of all counselors in 2005 to about 60 percent in 2007. Declines in the proportion of tenured counselors coincided with increases in the proportion of temp and probationary counselors. Counselors with less than 5 years of experience were most likely to be hired during SSCP program years and average counselor experience declined. We explore the potential repercussions of changes in counselor experience further in the discussion section along with policy implications for the counselor labor market.

We also explored how these patterns varied by school characteristics. Table A.7 shows how the proportion of non-White, male, temporary and least experienced counselors changed from 2005 through 2008 for schools that used SSCP funds and whether trends varied by urbanicity and the share of students who were eligible for free or reduced price lunch (FRPL). Schools in urban areas or with more than 50 percent of students receiving FRPL had a higher proportion of non-White counselors. At high FRPL schools, the proportion of non-white counselors decreased (indicating these schools disproportionately hired white counselors) while the share of non-white counselors increased at urban schools. The proportion of temporary and least experienced counselors increased across all school types and it does not appear that these counselors were disproportionately hired in certain types of schools.

[10] This represents the average change in the number of students per counselor in the state. As mentioned in the introduction and section 5, the causal effect of the policy change was a reduction in caseloads of more than 150 students per counselor.

[11] This could reflect differences in the schools that hired counselors, since schools that used SSCP funds had a higher share of Hispanic students than schools that did not.

Finally, we examined whether other types of funding changed at this time. We found no evidence of schools changing staffing or spending levels for other types of positions (e.g., social workers or psychologists). In addition, the SSCP did not appear to crowd out or crowd in spending on school counselors (see Table A.8).

4 Empirical Approach

Next, we describe our approach for estimating the causal effects of the program on academic and school climate outcomes. We leverage the sharp timing of the SSCP policy in an event study design which compares changes before and after the policy implementation in 2006 while controlling for statewide trends in student outcomes. We include school fixed effects to account for differences across high schools in things like other services offered and community factors. To account for potential time trends leading up to the SSCP (e.g., increasing rates of Hispanic students) we fit a parametric event study specification as in Dobkin et al. (2018) and Rambachan and Roth (2023). To implement this approach, we identify a functional form that fits the data in the pre-period (above and beyond what is captured by the school fixed effects) and then control for the expected trend in the post-period (Rambachan & Roth, 2023). As in Dobkin et al. (2018), we fit this in a two-step process. First, we fit the following regression for all observations between 2003 and 2005.

$$Y_{st} = \alpha Time_t + \gamma_s + \epsilon_{st} \tag{1}$$

Here, an outcome, Y_{st}, is defined for students in school s in year t, γ_s is school fixed effects and $Time_t$ is a linear variable for time from the policy implementation. We then compute the residuals ($\bar{Y}_{st}$) as the difference between the predicted values ($\hat{Y}_{st}$) and $\alpha Time_t$. The residuals are the estimated effects absent the time trend but inclusive of the fixed effects. This nets out the time trend (based on $Time_t$) in the post period that one would expect based on any trend observed in the pre-period. Then, we fit the following equations with our residuals ($\bar{Y}_{st}$).

$$\bar{Y}_{st} = \beta Year_t + \gamma_s + X_{st} + \epsilon_{st} \tag{2}$$

$$\bar{Y}_{st} = \delta SSCP_{st} + \gamma_s + X_{st} + \epsilon_{st} \tag{3}$$

In Equation 2, $Year_t$ is a vector with indicators for each year, and β is a vector of coefficients indicating how the outcome varies for each time period. This equation is used to plot our event study estimates, with a separate estimate for each time period. We fit this model for all years from 2003 to 2012, except where data are not available for the full time period.[12]

Our main results allow for variation in implementation timing across schools. The majority of schools first received SSCP funding in 2006 but some schools first received funds in 2007 or 2008. Thus, our main models focus on time relative to when a school first received SSCP funds. In the appendix, we show robustness to an intent to treat approach where everyone's treatment is defined to occur at the same time - i.e. starting in 2006 (see Tables A.9, A.10, and A.11).

Equation 3 is used to estimate the average effect of the policy. Here, $SSCP_{st}$ is an indicator which equals one in the years after SSCP implementation and δ is the average effect of the policy. We fit this model using three years of pre-period data (2003-2005) and two years of post-period data (2007-2008). We exclude 2006 from this model because the event study plots associated with equation 2 suggest it took a year for the policy to be implemented and have any effects. The appendix contains tables which show our estimates including 2006 as a treated year (see A.12, A.13, and A.14). We also exclude 2009-2012 from the average effects because the policy differed in these years.

For all models, we cluster standard errors at the school by year level. We weight the school level regressions by the number of students enrolled in the school. We also show that our models are robust to additional controls X_{st}, including school racial and gender composition, percent of students receiving free or reduced-price meals, urbanicity, and instructional spending.[13] The student level models include controls for individual student race/ethnicity, gender, as well as school urbanicity, share of students receiving free or reduced-price lunch, and instructional spending.

[12] For instance, our student level CAHSEE data end in 2010 and the college enrollment data end in 2009.

[13] Urbanicity refers to binary indicators for schools located in rural and urban areas as defined by the National Center for Education Statistics (NCES). Urbanicity data are missing for 2003, so we recode a given high school's urbanicity in 2003 based on their reported urbanicity in 2004 or the first year it is recorded.

Estimates based on the student-level CAHSEE data also control for student socioeconomic disadvantage, and models based on the survey data include controls for student grade level and age.[14] Because of some changes in survey respondents over time, we focus on the survey estimates that include controls for student (and school) characteristics.

Our event study design will yield valid causal estimates so long as there were no anticipatory effects prior to the SSCP and outcomes would have evolved in a similar fashion after the SCCP was implemented if not for the program. It is unlikely that there were any anticipatory effects because there were only a few months between when the bill passed and the program began. In addition, there was limited red tape or criteria in applying for and receiving SSCP funds. There are some other widespread changes which could affect a few of our outcomes. For instance, the state changed high school graduation requirements so that, beginning with the class of 2006, all students had to pass the CAHSEE in order to graduate. This potentially influenced high school graduation rates and may have influenced passing rates on the CAHSEE. To address this, we focus on CAHSEE pass rates for 10th graders rather than overall pass rates since changes in graduation requirements likely had the largest effect on 11th and 12th graders retaking the exam to meet graduation requirements. We also focus on the high school graduation rates for cohorts of 10th graders - e.g., we treat the 2006 10th graders as the first treated cohort since the CAHSEE was likely the main mechanism through which counselors influenced graduation. In addition, the SAT added the writing component in 2006 which may have decreased SAT taking. To address this limitation we look at ACT taking as well since some students may have substituted the ACT for the SAT. However, without student level data it is hard to measure substitution between exams, so we only present these results in the appendix. Finally, the SSCP included guidance around the academic advising students should receive. Thus, our estimates will reflect the impact of the entire SSCP program, and may not necessarily indicate the independent effect of expanding access to school counselors without guidance about the counseling they are intended to provide.

[14]The survey data do not include data on family income or receipt of free or reduced price meals.

5 Results

5.1 Main Results

Figure 4 shows that the average number of counselors per high school increased with the implementation of the SSCP policy and the average student to counselor ratio declined. Time zero indicates the year in which the school first received the SSCP funds. The largest changes were in the second and third years (time 1 and time 2) in which a school received SSCP funds, which suggests that it may have taken time for schools to find counselors to hire. This is consistent with the patterns in Figure 2. In 2009, schools were no longer required to spend SSCP funds on school counselors, which may explain the slight decline in the number of counselors in later years. Table 3 indicates that the average high school had an additional 0.68 counselors in years two and three relative to the year prior to the policy, and student-to-counselor ratios were 169 students lower. The estimates are slightly larger if controls for school characteristics are included in the models.

The remaining columns of Table 3 show the policy effects on high school academic and college enrollment outcomes; we also present these results visually in Figure 5. SSCP led to a three percentage point increase in high school graduation rates, with more pronounced effects several years after policy implementation.[15] Table 4 shows that pass rates on the ELA exam decreased slightly while those on the math exam increased, and the overall pass rate did not change. Math exam scores also increased, and ELA scores decreased slightly.

SSCP also led to an increase in overall public college enrollment with some variation across college types. For instance, community college and University of California (UC) enrollment increased by roughly 1 percentage point after SSCP implementation. Effects on California State University (CSU) enrollment are near 0 and become negative in the year prior to the end of program funding. The initial positive effects on community college enrollment may signal the potential for counselors to increase the likelihood of any college enrollment for marginal college-going students who were specifically targeted by SSCP. Increases in UC enrollment, and concurrent declines in

[15]This figure shows graduation rates by the year in which 10th graders were first exposed to the policy. For instance, 10th graders exposed in 2006 are represented by time zero. This is because students likely had to be exposed to counselors in earlier grades (and when they first took the CAHSEE) for counselors to influence high school graduation.

CSU enrollment, also indicate the potential for counselors to alter college decision-making among inframarginal college-going students and increase the selectivity of colleges these students attend.[16] Given changes in the SAT test that coincide with SSCP implementation, we present these results in the appendix. SAT test-taking declined after SSCP while ACT test-taking increased (see figure A.3).

Next, we examine changes in student reports of school climate and behavior. Figure 6 and Table 5 indicate that reports of caring staff-student relationships and school connectedness increased by 0.14 and 0.10 standard deviations, respectively, while delinquency declined by 0.08 SD. The appendix also shows estimates for specific survey questions related to students' sense of belonging and whether they feel supported and safe at school. For instance, Table A.15 highlights that students were more likely to report an adult at school caring about them, that an adult told them they did a good job, that an adult at school listens to them, or that they feel safe at school after the SSCP was implemented. These results suggest that counselors had a substantial impact on improving student perceptions of school climate, which in turn may contribute to observed improvements in academic achievement or postsecondary outcomes.

5.2 Heterogeneity across Students and Schools

We explore variation in our estimates across student and school characteristics. This is important because counselors may focus their time on serving certain types of students, and some schools may have an easier time hiring qualified counselors than others. Furthermore, it is possible that hiring inexperienced counselors may lead to worse student outcomes than having larger counselor caseloads but more qualified counselors.

First, we look at variation by student characteristics for the outcomes we have at the student level. Table 6 shows that impacts on the CAHSEE exam pass rates and exam scores were larger and positive for Black or Hispanic students, and students from more socioeconomically disadvantaged families. These students are more than 20 percent less likely to pass the CAHSEE exam than their

[16] Colleges in the University of California system are considered more selective and research intensive than those in the California State University system. UC and CSU schools are all four-year schools that predominantly offer bachelor's degrees.

peers, so improving their performance can have important equity implications. For all outcomes, differences by race/ethnicity and socioeconomic disadvantage are statistically significant at the one percent level. The estimates also significantly vary across gender, but the magnitudes of the differences are smaller than the differences for the other groups. The effects on pass rates and exam scores are more positive, or less negative, for men relative to women.

Table 7 shows differences in the school climate outcomes by gender and race/ethnicity. It indicates that impacts are significantly larger for men than women when looking at caring staff-student relationships and delinquency. In addition, impacts are significantly larger for Black or Hispanic students relative to White or Asian students when looking at caring staff-student relationships and school connectedness. Thus, improvements in school climate may explain some of the improvements we observe in terms of academic achievement for these groups. Panel (C) shows that effects on caring staff-student relationships are larger for 9th graders than 11th graders, but estimates for school connectedness are larger for 11th graders.

Second, we look at variation in outcomes by school characteristics. The first two columns of Table 8 show that changes in counselor caseloads are comparable across high and low poverty schools and urban and rural schools. Large schools experienced larger gains in the number of counselors and reductions in student-to-counselor ratios than medium or small sized schools.[17] Improvements in high school graduation are comparable across all school subgroups.

Table A.16 indicates that the SSCP led to significantly larger increases in CAHSEE exam pass rates and scores in high poverty schools relative to low poverty schools. In high poverty schools, SSCP is associated with a 3.2 percentage point increase in pass rates on the math exam and 0.6 percentage points on the ELA exam, for an overall increase in pass rates of 2.4 percentage points. Impacts on math pass rates are also larger in urban schools than rural schools, and in large and small schools relative to medium sized schools.

Effects on college enrollment are also much larger at high poverty schools and in rural areas. In particular, SSCP is associated with a 3 percentage point increase in college enrollment at high poverty schools and an 8 percentage point increase in college enrollment in rural schools.

[17] Large schools are defined as those with 2,000 students or more. Medium sized schools have 1,000 to 1,999 students and small schools have fewer than 1,000 students.

There is no significant impact on college enrollment rates in low poverty or urban schools. In low poverty schools, we see that the policy had more of an impact on the types of colleges that students attended - with the policy leading to a reduction in attendance at CSU schools but a similar magnitude increase in attendance at UC schools. Thus, counselors may be important for helping students select and attend highly selective schools - which can be beneficial for future outcomes including degree attainment and earnings (Cohodes & Goodman, 2014; Bleemer, 2022). Panel (C) also indicates that the program had larger effects on college enrollment among students in large high schools. This could be because the policy had larger impacts on access to school counselors in these schools.

Table A.17 shows that impacts on indices for caring staff-student relationships are also significantly higher (by 0.02 SDs) in high poverty schools relative to low poverty schools while effects on school connectedness and delinquency are comparable across school types. The effects on all three of these indices are also higher for rural schools relative to urban schools.

Finally, we look at variation in outcomes based on the types of counselors that schools hired. We hypothesized that hiring more experienced counselors could lead to positive impacts while hiring inexperienced counselors could lead to worse student outcomes. Table A.18 reports results by whether the average level of experience in a school increased, decreased, or stayed the same with the implementation of SSCP. There are no clear patterns to suggest that the policy impacts were driven by the types of counselors hired.

5.3 Robustness Checks

The appendix contains additional robustness checks for our main estimates. First, we fit intent to treat models where treatment is defined as the first year of the SSCP (2006) rather than the first year each school received funds. Schools that did not receive funding are included in these estimates and also considered treated in 2006. These results are in Tables A.9, A.10, A.11 and Figure A.5. They are comparable to our main effect estimates, which is not surprising given high take up rates across districts.

Second, we fit our event study model with school and year fixed effects, rather than only

school fixed effects. The year fixed effects can account for statewide changes over time, such as the change in high school graduation requirements and SAT test. However, there is little variation in the treatment years (with 85 percent of treated schools first receiving treatment in 2006 and only 6 percent of schools never receiving SSCP funds), so these models are estimated with much less precision than models without the year fixed effects. These results suggest SSCP had null effects on high school graduation rates but positive effects on CAHSEE exam pass rates and college enrollment, though estimates are noisy (see Table A.19, A.20, A.21 and Figure A.4). Recent evidence also indicates these two-way fixed effects models may be biased (e.g., Goodman-Bacon, 2021; Roth, et al., 2023).

Third, we fit models which include our first year of treatment in the average treatment effect. Tables A.9, A.10 and A.11 contain these results. The magnitudes are slightly smaller (because the policy had smaller effects in it's first year) but the patterns are qualitatively similar.

Finally, we examine how student outcomes change for schools that had no counselors prior to SSCP and hired a counselor during the program. Similar to the overall sample, we see large increases in access to school counselors and positive effects on CAHSEE math exams and high school graduation rates. Estimates are less precise and near zero for public college enrollment outcomes (see Figure A.1).

6 Discussion

Our results indicate that the SSCP increased spending on counselors and thus the number of counselors on staff, which in turn reduced student-to-counselor ratios. These changes are associated with a three percentage point increase in high school graduation rates, 1 percentage point increase in public college enrollment, and a roughly 0.1 SD improvement in school climate indices. Impacts are larger in high poverty schools and rural schools, and for students who were socioeconomically disadvantaged or students who are Black or Hispanic. Thus, counselors may help to reduce existing equity gaps in academic achievement and college enrollment. At lower poverty schools, increased access to counselors also appears to shift the types of colleges that students attend. Despite the policy leading to a large influx of less experienced counselors, we do not find any

consistent evidence that the policy impacts vary based on the experience levels of the counselors hired during the program.

We also do not see any evidence that the program crowded out or crowded in spending on school counselors. Per policy guidelines, SSCP funds were required to supplement rather than supplant counselor spending. Treatment effect estimates may be biased toward zero if SSCP funds crowded out counselor spending or, conversely, we might see larger effects for some schools if SSCP funding crowded in additional counselor spending. To assess this, we regress total counselor spending on SSCP spending, including district fixed effects and limiting to program years. We find that districts spent $.964 dollars on guidance counseling services for every $1 of SSCP money spent (see appendix table A.8). This suggests schools followed policy guidelines and that SSCP funds did not crowd out (or in) overall counselor spending.

While the SSCP led to a significant change in the number of school counselors in California and had a meaningful impact on student outcomes, the changes still fell short of reducing counselor ratios to the American School Counselor Association's recommendation of 250 to 1. It is possible that larger reductions in caseloads may be needed to observe larger benefits. In addition, tradeoffs between increasing access to counselors and reducing average counselor experience may be different in a state with lower starting student to counselor ratios. California had one of the highest student to counselor ratios at the time ($\approx$ 500:1) and it continues to have a ratio well above the national average (464:1 relative to the average of 385:1) (American School Counselors Association, 2023). Impacts of similar policies may also vary across state contexts based on their labor markets and pool of potential counselors.

We examined where schools may have found counselors to hire amid this rapid expansion and where these counselors may have gone when the policy ended using data from Occupational Employment and Wage Statistics (OEWS) on employment rates in California. Figure A.6 shows these results. The number of mental health counselors declined during the SSCP years, so schools may have hired school counselors away from this field. Similarly, it appears that counselors let go by schools after SSCP funding was terminated may have gone into different fields of social work,

particularly child, family, and school social work.[18]

Program impacts may have also varied if SSCP had been implemented for a longer period of time. Program funding only existed for three years before being cut in 2009 as a result of the great recession. Effects on students' academic and social-emotional outcomes may be larger with more sustained and consistent program funding, especially for outcomes such as high school graduation and college enrollment which can be impacted by multiple years of exposure to a counselor.

Finally, it is important to consider the schools that did not use SSCP funds. While most districts used SSCP funds prior to program termination, the relatively few districts that did not use SSCP dollars were concentrated in rural areas with lower student enrollment and counselor ratios. In these districts, the amount of money allotted based on enrollment may not have been enough to hire a full time counselor, and these districts may have faced additional hurdles in recruiting and hiring licensed counselors. In addition to concerns around counselor experience, this underscores the importance of pairing increased funding for school counselors with policies that support and ensure adequate counselor labor supply.

While this study provides some insight into how broad policies to expand school counseling may influence student outcomes, there are a few additional questions that will be important to examine in the future. Here, we focus exclusively on high school outcomes, though it would be valuable to know how large-scale expansions of counseling earlier on may impact long-term academic outcomes. In addition, the college enrollment outcomes we are able to measure omit private and out-of-state colleges; this accounts for only 10 percent of California high school graduates, but inclusion of these students may add more clarity to counselor effects on college-going. Last, we are limited in our ability to detect spillover effects on teachers, who may take on some counseling responsibilities in the absence of sufficient counselors.

[18]This type of labor market transition may have required additional licensure or certification.

7 Conclusion

This paper presents some of the first evidence on the impacts of a large scale program to expand school counseling. The additional funds that California provided to middle and high schools as part of the Supplemental School Counseling Program led to increases in the number of counselors in these schools and a reduction in the number of students assigned to each counselor. The expansion of school counseling pulled many newer and less experienced counselors into schools, suggesting that the supply of counselors is important to consider before implementing large programs like this. Importantly, the program significantly improved high school graduation and public college enrollment rates as well as student perceptions of school climate, highlighting the critical role that counselors play in supporting students' academic outcomes, social-emotional health, and school climate at-large. The program also had larger impacts in high poverty and rural schools, and for more socioeconomically disadvantaged students as well as Black and Hispanic students. As policymakers and school officials continue to grapple with mental health crises and equity gaps in academic achievement and college access post-Covid 19, counselors may be a valuable resource for students and families.

8 References

American School Counselors Association. (2023). Student-to-Counselor Ratio 2022-23. Accessed on August 29, 2024 at https://www.schoolcounselor.org/getmedia/a988972b-1faa-4b5f-8b9e-ratios-22-23-alpha.pdf

Benbenishty, R., Astor, R. A., Roziner, I., & Wrabel, S. L. (2016). Testing the causal links between school climate, school violence, and school academic performance: A cross-lagged panel autoregressive model. *Educational Researcher*, 45(3), 197-206.

Berkowitz, R., Moore, H., Astor, R. A., & Benbenishty, R. (2017). A research synthesis of the associations between socioeconomic background, inequality, school climate, and academic achievement. *Review of educational research*, 87(2), 425-469.

Bleemer, Z. (2022). Affirmative action, mismatch, and economic mobility after California's Proposition 209. *The Quarterly Journal of Economics*, 137(1), 115-160.

California Education Code. (2011). 2011 California Education Code Article TITLE 2. ELEMENTARY AND SECONDARY EDUCATION [33000 - 64100] ARTICLE 1. Control of Expenditures Section 42605. Accessed on August 28, 2024 at https://law.justia.com/codes/california/2011/edc/title-2/42600-42606/42605.

Carrell, S. E., & Hoekstra, M. (2014). Are school counselors an effective education input?. *Economics Letters*, 125(1), 66-69.

Chetty, R., Friedman, J. , & Rockoff, J. (2014). Measuring the impacts of teachers II: Teacher value-added and student outcomes in adulthood. *American economic review*, 104(9), 2633-2679.

Cohodes, S. R., & Goodman, J. S. (2014). Merit aid, college quality, and college completion: Massachusetts' Adams scholarship as an in-kind subsidy. *American Economic Journal: Applied Economics*, 6(4), 251-285.

Dobkin, C., Finkelstein, A., Kluender, R., & Notowidigdo, M. J. (2018). The economic consequences of hospital admissions. *American Economic Review*, 108(2), 308-352.

Dynarski, S., Libassi, C., Michelmore, K., & Owen, S. (2021). Closing the gap: The effect of reducing complexity and uncertainty in college pricing on the choices of low-income students. *American Economic Review*, 111(6), 1721-1756.

Dynarski, S., Page, L. C., & Scott-Clayton, J. (2022). College costs, financial aid, and student decisions. *NBER Working Paper* no. 30275.

Fredriksson, P., Öckert, B., & Oosterbeek, H. (2013). Long-term effects of class size. *The Quarterly Journal of Economics*, 128(1), 249-285.

Gagnon, D. J., & Mattingly, M. J. (2016). Most U.S. school districts have low access to school counselors: Poor, diverse, and city school districts exhibit particularly high student-to-counselor ratios" (2016). Carsey School of Public Policy.

Goodman-Bacon, A. (2021). Difference-in-differences with variation in treatment timing. *Journal of econometrics*, 225(2), 254-277.

Hoxby, C., & Turner, S. (2013). Expanding college opportunities for high-achieving, low income students. *Stanford Institute for Economic Policy Research* Discussion Paper, 12(014), 7.

Hurwitz, M., & Howell, J. (2014). Estimating causal impacts of school counselors with regression discontinuity designs. *Journal of Counseling & Development*, 92(3), 316-327.

Jackson, C. K., Johnson, R. C., & Persico, C. (2016). The effects of school spending on educational and economic outcomes: Evidence from school finance reforms. *The Quarterly Journal of Economics*, 131(1), 157-218.

Jepsen, C., & Rivkin, S. (2009). Class size reduction and student achievement the potential tradeoff between teacher quality and class size. *Journal of Human Resources*, 44(1), 223-250.

Kraft, M. A., Marinell, W. H., & Shen-Wei Yee, D. (2016). School organizational contexts, teacher turnover, and student achievement: Evidence from panel data. *American Educational Research Journal*, 53(5), 1411-1449.

Krueger, A. B. (1999). Experimental estimates of education production functions. *The Quarterly Journal of Economics*, 114(2), 497-532.

Lafortune, J., Rothstein, J., & Schanzenbach, D. W. (2018). School finance reform and the distribution of student achievement. *American Economic Journal: Applied Economics*, 10(2), 1-26.

Lapan, R. T., Whitcomb, S. A., & Aleman, N. M. (2012). Connecticut professional school counselors: College and career counseling services and smaller ratios benefit students. *Professional School Counseling*, 16(2), 2156759X0001600206.

Lapid, P. A. (2017). Essays on the Economics of College Access and Completion. *University of California, Berkeley*.

Mahecha, J., & Hanson, T. (2020). Measurement structure of the California school climate, health, and learning surveys. **WestEd**.

Modan, N. (2022). California Plans to double school counselors amid shortage. *K-12 Dive*. `https://www.k12dive.com/news/california-plans-to-double-school\-counselors-amid-shorta 628991/`.

Mulhern, C. (2023). Beyond teachers: Estimating individual school counselors' effects on educational attainment. *American Economic Review* 113(11), 2846-2893.

Mulhern, C. (2021). Changing college choices with personalized admissions information at scale: Evidence on Naviance. *Journal of Labor Economics*, 39(1), 219-262.

Perna, L. W., & Titus, M. A. (2005). The relationship between parental involvement as social capital and college enrollment: An examination of racial/ethnic group differences. *The Journal of Higher Education*, 76(5), 485-518.

Prothero, A., & Riser-Kositsky, M. (2022). School Counselors and Psychologists Remain Scarce Even as Needs Rise. https://www.edweek.org/leadership/school-counselors\-and-psycholo 2022/03.

Rambachan, A., & Roth, J. (2023). A more credible approach to parallel trends. *Review of Economic Studies*, 90(5), 2555-2591.

Reardon, S. F., Arshan, N., Atteberry, A., & Kurlaender, M. (2010). Effects of failing a high school exit exam on course taking, achievement, persistence, and graduation. *Educational Evaluation and Policy Analysis*, 32(4), 498-520.

Reback, R. (2010). Noninstructional spending improves noncognitive outcomes: Discontinuity evidence from a unique elementary school counselor financing system. *Education Finance and Policy*, 5(2), 105-137.

Rogers, J., Terriquez, V., Valladares, S., & Oakes, J. (2006). California Educational Opportunity Report 2006: Roadblocks to College. https://idea.gseis.ucla.edu/publications/eor-06/EOR-2006.pdf.

Roth, J., Sant'Anna, P. H., Bilinski, A., & Poe, J. (2023). What's trending in difference-in-differences? A synthesis of the recent econometrics literature. *Journal of Econometrics*, 235(2), 2218-2244.

Rowell, L., Whitson, L., & Thomas, S. (2008). Middle and high school supplemental counseling program: Increased support for student success in California schools.https://issuu.com/usdsoles/docs/whitepaper.

Supplemental School Counseling Program. (2007). 2007 California Education Code Article 4.5. sections 52378-52380. Accessed on August 28, 2024 at https://law.justia.com/codes/california/2007/edc/52378-52380.html.https://law.justia.com/codes/california/2007/edc/52378-52380.html

Thapa, A., Cohen, J., Guffey, S., & Higgins-D'Alessandro, A. (2013). A review of school climate research. *Review of educational research*, 83(3), 357-385.

Woods, C. S., & Domina, T. (2014). The school counselor caseload and the high school-to-college pipeline. *Teachers College Record*, 116(10), 1-30.

Zubko, C. (2010). AB 1802: The middle and high school supplemental counseling program: Administrator and counselor perspectives. *California State University, Fullerton*.

Tables and Figures

Table 1: Sample High School Characteristics

Characteristics	Enrollment (1)	Female (2)	Asian (3)	Black (4)	Hispanic (5)	White (6)	Share FRPL (7)
2003	1589	0.48	0.08	0.07	0.38	0.41	0.35
2004	1596	0.48	0.08	0.07	0.38	0.40	0.35
2005	1619	0.48	0.09	0.07	0.40	0.38	0.36
2006	1572	0.48	0.08	0.07	0.40	0.37	0.39
2007	1534	0.48	0.08	0.07	0.42	0.36	0.42
2008	1491	0.48	0.08	0.07	0.43	0.35	0.44
2009	1466	0.48	0.08	0.07	0.44	0.33	0.48
2010	1434	0.48	0.08	0.07	0.46	0.32	0.48
2011	1407	0.48	0.08	0.07	0.47	0.32	0.37
2012	1376	0.48	0.08	0.06	0.48	0.31	0.54
Outcomes	Graduation Rate (1)	ELA (2)	Math (3)	CC Share (4)	CSU Share (5)	UC Share (6)	Public College Share (7)
2003	0.91	0.73	0.71	0.29	0.10	0.08	0.48
2004	0.91	0.74	0.71	0.31	0.11	0.08	0.50
2005	0.90	0.75	0.74	0.29	0.12	0.08	0.49
2006	0.90	0.74	0.74	0.29	0.13	0.09	0.51
2007	0.89	0.75	0.74	0.30	0.13	0.08	0.51
2008	0.87	0.75	0.75	0.30	0.13	0.08	0.50
2009	0.89	0.76	0.76	0.28	0.12	0.08	0.48
2010	0.86	0.82	0.82	.	.	.	.
2011	0.87	0.77	0.77	.	.	.	.
2012	0.90	0.77	0.77	.	.	.	.

Notes: Reported school characteristics include average high school enrollment, gender and racial composition of the student body, and the proportion of students who are eligible for free or reduced price lunch. Reported outcomes include average four-year high school graduation rate and the California High School Exit Exam (CAHSEE) pass rates for grade 10 students in English Language Arts and Math. CC, CSU, and UC share refers to the proportion of students who enrolled in a California public community college, California State University, and University of California school, respectively. Public college share captures the percent of students who enrolled in either any California public college.

Table 2: Sample High School Characteristics, by SSCP Takeup

	Used SSCP Funds (1)	Never Used SSCP Funds (2)	Difference in Means (3)	P-Value (4)
Demographic Characteristics				
Share FRPL	0.422	0.449	0.028	0.429
Female	0.483	0.474	-0.009	0.170
Asian	0.083	0.034	-0.049	0.006
Hispanic	0.420	0.304	-0.116	0.002
Black	0.074	0.047	-0.026	0.060
White	0.351	0.496	0.145	0.000
Rural	0.173	0.460	0.287	0.000
Urban	0.372	0.500	0.128	0.069
High School Outcomes				
Graduation Rate	0.886	0.891	0.005	0.763
SAT	0.356	0.267	-0.089	0.015
ACT	0.146	0.150	0.005	0.816
ELA	0.737	0.751	0.014	0.657
Math	0.735	0.731	-0.003	0.920
CC Share	0.295	0.203	-0.092	0.001
CSU Share	0.129	0.093	-0.036	0.001
UC Share	0.084	0.047	-0.037	0.003
Public College Share	0.508	0.343	-0.165	0.000
Counselor Characteristics				
Counselor Ratio	433.641	353.067	-80.574	0.050
Counselors	3.537	1.960	-1.577	0.000
0-5 Years of Experience	0.801	0.453	-0.348	0.007
5-10 Years of Experience	0.769	0.297	-0.472	0.000
10+ Years of Experience	1.967	1.210	-0.757	0.002
N	937	50		

Notes: Data are limited to high schools in our analytic sample. We report the average high school demographic characteristics, outcomes, and counselor characteristics for high schools in districts that ever or never received SSCP funds between 2006 and 2008. P-values are reported from a ttest of the difference in means between high schools in districts that received any SSCP funding between 2006 and 2008 versus those in districts that never received SSCP funding. Counselor characteristics related to years of experience indicate the average number of counselors per school within each experience band.

Table 3: Effects on Counselor and Academic Outcomes

	Total Counselors (1)	Counselor Ratio (2)	High School Graduation (3)	CC Share (4)	CSU Share (5)	UC Share (6)	Public College Share (7)
(A) Main Estimates							
SSCP	0.675***	-168.880***	0.031***	0.007**	-0.005***	0.009***	0.012***
	(0.055)	(8.635)	(0.001)	(0.004)	(0.001)	(0.001)	(0.003)
(B) With Controls							
SSCP	0.738***	-184.192***	0.031***	-0.011	-0.008***	0.011***	-0.008
	(0.105)	(19.659)	(0.003)	(0.007)	(0.002)	(0.001)	(0.007)
N	4,199	3,864	4,263	3,472	3,472	3,472	3,472

Notes: All regressions include school fixed effects and control for linear time trends in the preperiod, or years prior to policy implementation in 2006. Estimates in panel (B) are based on regressions which control for instructional spending levels at the district, the share of students receiving free or reduced-price lunch in the school, the share of students in the school who are female, the share of students in the school who are Asian, Hispanic, Black, or White, and indicators for whether the school is in a rural or urban area. These estimates are based on 2003-2008 and treatment is determined by when the school first received SSCP funds. N reports on the number of school by year clusters. Heteroskedasticity robust standard errors clustered at the school by year level are in parentheses. (*p<.10 **p<.05 *** p<.01).

Table 4: Student-level CAHSEE Achievement

	Math Pass Rate (1)	ELA Pass Rate (2)	Overall Pass Rate (3)	Math Scale Score (4)	ELA Scale Score (5)
(A) Main Estimates					
SSCP	0.007***	-0.011***	-0.000	1.760***	-0.757***
	(0.002)	(0.001)	(0.002)	(0.149)	(0.145)
(B) With Controls					
SSCP	0.007***	-0.006***	0.003	1.848***	0.566***
	(0.002)	(0.002)	(0.002)	(0.184)	(0.187)
N	1,645,209	1,654,372	1,623,818	1,661,770	1,662,199

Notes: Heteroskedasticity robust standard errors clustered by school and year are in parentheses. (*p<.10 **p<.05 *** p<.01). All regressions include school fixed effects and control for linear time trends in the preperiod, or years prior to policy implementation in 2006. Estimates in panel (B) are based on regressions which control for instructional spending levels at the district, the share of students receiving free or reduced-price lunch in the school, student gender, race/ethnicity, and socioeconomic disadvantage, as well as indicators for whether the school is in a rural or urban area. Overall pass rate refers to passing both the math and ELA exams. Pass rates are only based on students who take the test in 10th grade. These estimates are based on 2003-2008 and treatment is determined by when the school first received SSCP funds. The first year of treatment is excluded from the estimates.

Table 5: Indices of Student Survey Responses

	Caring Staff-Student Relationships (1)	School Connectedness (2)	Delinquency (3)
(A) Main Estimates			
SSCP	0.149***	0.103***	-0.080***
	(0.003)	(0.004)	(0.003)
(B) With Controls			
SSCP	0.155***	0.106***	-0.079***
	(0.006)	(0.007)	(0.005)
N	874,863	882,422	894,085

Notes: Heteroskedasticity robust standard errors clustered by school and year are in parentheses. (*p<.10 **p<.05 *** p<.01). All regressions include school fixed effects and control for linear time trends in the preperiod, or years prior to policy implementation in 2006. Estimates in panel (B) are based on regressions which control for instructional spending levels at the district, the share of students receiving free or reduced-price lunch in the school, indicators for whether the school is in a rural or urban area, and indicators for whether the student is female, Asian, Hispanic, Black or White, the student's age and grade. These estimates are based on 2003-2008 but the first year of treatment is excluded. Treatment is determined by when the school first received SSCP funds. Estimates are in standard deviations.

Table 6: CAHSEE Achievement by Student Characteristics

	Math Pass Rate (1)	ELA Pass Rate (2)	Overall Pass Rate (3)	Math Scale Score (4)	ELA Scale Score (5)
(A) By Gender					
Male	0.009***	-0.006***	0.002	2.203***	-0.179
	(0.001)	(0.001)	(0.001)	(0.123)	(0.121)
Female	0.005***	-0.017***	-0.002*	1.299***	-1.325***
	(0.001)	(0.001)	(0.001)	(0.121)	(0.116)
P-value Difference	0.00	0.00	0.00	0.00	0.00
Male Mean	0.81	0.78	0.73	385.54	377.50
Female Mean	0.82	0.85	0.77	384.03	387.47
(B) By Race/Ethnicity					
URM	0.038***	0.013***	0.031***	3.364***	1.188***
	(0.002)	(0.002)	(0.002)	(0.171)	(0.166)
Non-URM	-0.011***	-0.024***	-0.016***	2.042***	-0.991***
	(0.001)	(0.001)	(0.001)	(0.159)	(0.159)
P-value Difference	0.00	0.00	0.00	0.00	0.00
URM Mean	0.71	0.71	0.63	370.29	368.48
Non-URM Mean	0.91	0.90	0.87	399.01	396.07
(C) By FRPL Status					
Socioeconomically Disadvantaged	0.038***	0.021***	0.035***	3.358***	1.686***
	(0.002)	(0.002)	(0.003)	(0.234)	(0.234)
Not Socioeconomically Disadvantaged	0.000	-0.015***	-0.004***	2.310***	-0.190
	(0.001)	(0.001)	(0.001)	(0.150)	(0.155)
P-value Difference	0.00	0.00	0.00	0.00	0.00
Socioeconomically Disadv. Mean	0.73	0.70	0.63	372.34	367.63
Not Socioeconomically Disadv. Mean	0.87	0.88	0.83	392.48	391.54
N	1,645,209	1,654,372	1,623,818	1,661,770	1,662,199

Notes: Heteroskedasticity robust standard errors clustered by school and year are in parentheses. (*p<.10 **p<.05 *** p<.01). All regressions include fixed effects for the school and control for linear time trends. Overall pass rate refers to passing both the math and ELA exams. Pass rates are only based on students who take the test in 10th grade. These estimates are based on 2003-2008 and treatment is determined by when the school first received SSCP funds. The first year of treatment is excluded from the estimates.Panel (A) reports estimates separately by gender. Panel (B) reports estimates separately for students from underrepresented minority backgrounds (Black or Hispanic) Panel (C) reports estimates separately by whether or not the student is classified as socioeconomically disadvantaged. relative to white and Asian students (non-urm). All panels include p-values reporting whether the coefficients for the different groups are significantly different from one another. Mean outcomes for each group are also reported.

Table 7: Impacts on Student Survey Indices by Student Characteristics

	Caring staff-Student Relationships (1)	School Connectedness (2)	Delinquency (3)
(A) By Gender			
Male	0.174***	0.106***	-0.098***
	(0.007)	(0.007)	(0.006)
Female	0.137***	0.106***	-0.060***
	(0.006)	(0.008)	(0.005)
P-value Difference	0.00	0.96	0.00
Male Mean	-0.08	-0.04	0.11
Female Mean	0.04	0.01	-0.22
(B) By Race/Ethnicity			
White or Asian	0.145***	0.098***	-0.079***
	(0.006)	(0.007)	(0.005)
Black or Hispanic	0.171***	0.119***	-0.082***
	(0.007)	(0.008)	(0.006)
P-value Difference	0.00	0.02	0.94
White/Asian Mean	0.08	0.11	-0.18
Black/Hispanic Mean	-0.10	-0.11	0.03
(C) By Grade			
9th Grade	0.163***	0.096***	-0.081***
	(0.007)	(0.008)	(0.006)
11th Grade	0.146***	0.118***	-0.076***
	(0.007)	(0.008)	(0.006)
P-value Difference	0.02	0.00	0.47
9th Grade Mean	-0.08	-0.00	-0.02
11th Grade Mean	0.05	-0.03	-0.12
N	874,863	882,422	894,085

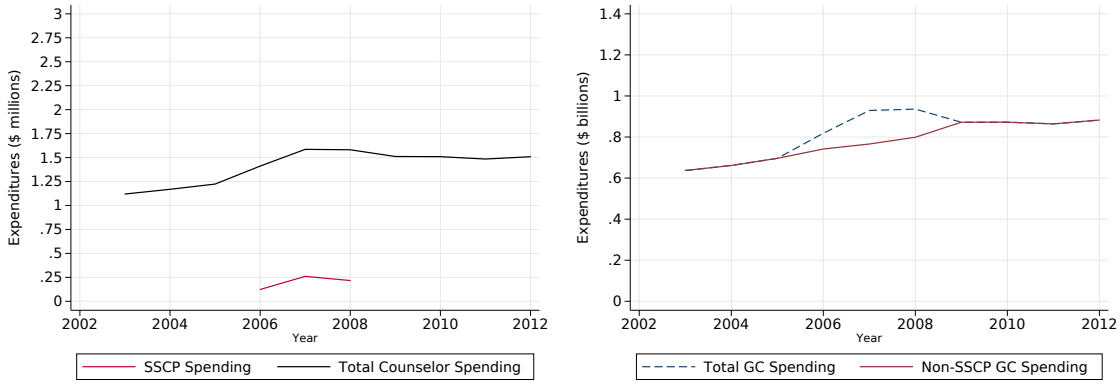
Notes: Heteroskedasticity robust standard errors clustered by school and year are in parentheses. (*p<.10 **p<.05 *** p<.01). All regressions include school fixed effects, control for linear time trends in the preperiod, instructional spending levels at the district, the share of students receiving free or reduced-price lunch in the school, indicators for whether the school is in a rural or urban area, and indicators for whether the student is female, Asian, Hispanic, Black or White, the student's age and grade. These estimates are based on 2003-2008 and the first year of treatment is excluded. Treatment is determined by when the school first received SSCP funds. All panels include p-values reporting whether the coefficients for the different groups are significantly different from one another. Mean outcomes for each group are also reported. Estimates are in terms of standard deviations.

Table 8: Effects on Counselor and Academic Outcomes, by School Subgroups

	Total Counselors (1)	Counselor Ratio (2)	High School Graduation (3)	CC Share (4)	CSU Share (5)	UC Share (6)	Public College Share (7)
(A) By Share of FRPL Students							
High Poverty	0.675***	-165.549***	0.033***	0.016**	0.002	0.013***	0.030***
	(0.117)	(21.894)	(0.003)	(0.008)	(0.002)	(0.001)	(0.008)
Low Poverty	0.677***	-171.335***	0.030***	0.002	-0.007***	0.008***	0.003
	(0.065)	(9.528)	(0.001)	(0.004)	(0.001)	(0.001)	(0.005)
P-value Difference	0.99	0.80	0.35	0.12	0.00	0.00	0.00
High Poverty Mean	3.20	401.76	0.84	0.29	0.11	0.05	0.45
Low Poverty Mean	3.56	481.92	0.92	0.30	0.12	0.09	0.52
(B) By Urbanicity							
Urban	0.641***	-177.318***	0.031***	0.005	-0.006***	0.010***	0.009
	(0.093)	(14.767)	(0.002)	(0.005)	(0.001)	(0.001)	(0.006)
Rural	1.032***	-163.054***	0.033***	0.055***	0.008*	0.017***	0.080***
	(0.167)	(24.166)	(0.003)	(0.015)	(0.004)	(0.002)	(0.018)
P-value Difference	0.21	0.23	0.81	0.00	0.09	0.31	0.00
Urban Mean	3.71	481.34	0.88	0.30	0.12	0.09	0.51
Rural Mean	3.12	418.72	0.90	0.29	0.12	0.07	0.47
(C) By School Size							
Large	0.873***	-187.213***	0.030***	0.022***	-0.003***	0.010***	0.029***
	(0.080)	(12.486)	(0.002)	(0.005)	(0.001)	(0.001)	(0.005)
Medium	0.382***	-150.178***	0.031***	-0.026***	-0.007***	0.005***	-0.028***
	(0.074)	(12.510)	(0.002)	(0.006)	(0.002)	(0.001)	(0.007)
Small	0.058	-89.608***	0.033***	-0.002	-0.002	0.012***	0.008
	(0.059)	(13.133)	(0.003)	(0.009)	(0.004)	(0.002)	(0.010)
P-value Diff Large - Med	0.00	0.00	0.47	0.00	0.13	0.01	0.00
P-value Diff Large - Small	0.00	0.14	0.73	0.00	0.04	0.00	0.00
P-value Diff Med - Small	0.00	0.00	0.47	0.30	0.51	0.14	0.70
Large Mean	5.54	538.77	0.90	0.32	0.12	0.08	0.52
Medium Mean	3.57	498.00	0.91	0.32	0.12	0.09	0.52
Mean Small Mean	1.31	306.77	0.86	0.22	0.11	0.06	0.39
N	4,199	3,864	4,263	3,472	3,472	3,472	3,472

Notes: All regressions include fixed effects for the year and school. High poverty schools are defined as those with at least 50% of students receiving free or reduced-price lunch. Low poverty schools are those with fewer than 50% of students receiving free or reduced-price lunch. Large schools are defined as those with at least 2000 students, medium schools have 1,000 to 1,999 students and small schools have fewer than 1,000 students. These estimates are based on 2003-2008 and treatment is determined by when the school first received SSCP funds. All panels include p-values reporting whether the coefficients for the different groups are significantly different from one another. Mean outcomes for each group are also reported. N reports on the number of school by year clusters. Heteroskedasticity robust standard errors clustered by school are in parentheses. (*p<.10 **p<.05 *** p<.01).

Figure 1: Trends in Counselor Spending

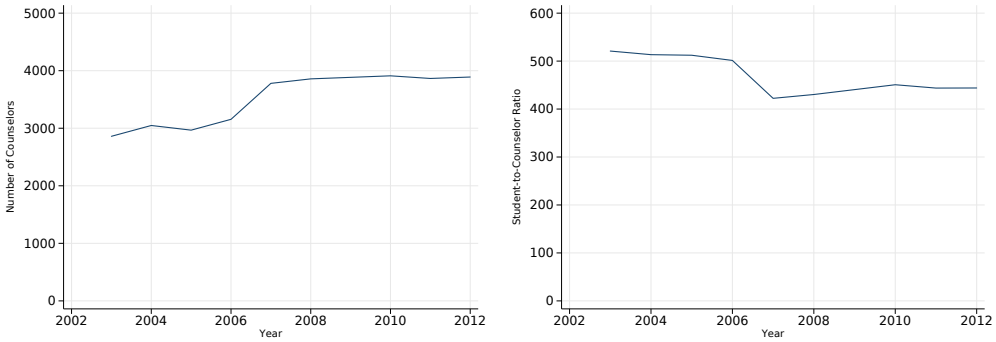


(a) Average District Counselor Expenditures

(b) Total Counselor Expenditures

Notes: Figures display (a) average district counselor expenditures in California, including total counselor spending and spending made more specifically through SSCP funding and (b) total counselor expenditures across all districts in our analytic sample, inclusive and exclusive of SSCP funding from 2003-2012.

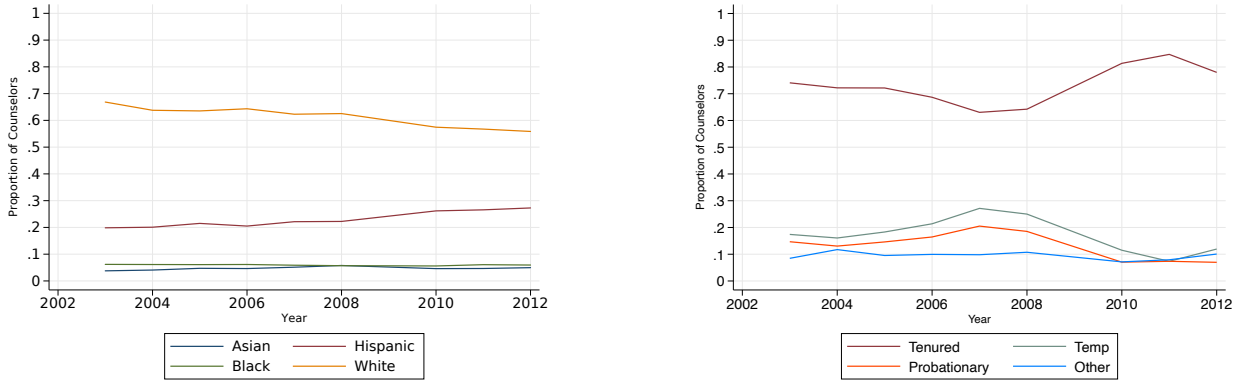
Figure 2: Trends in School Counselors



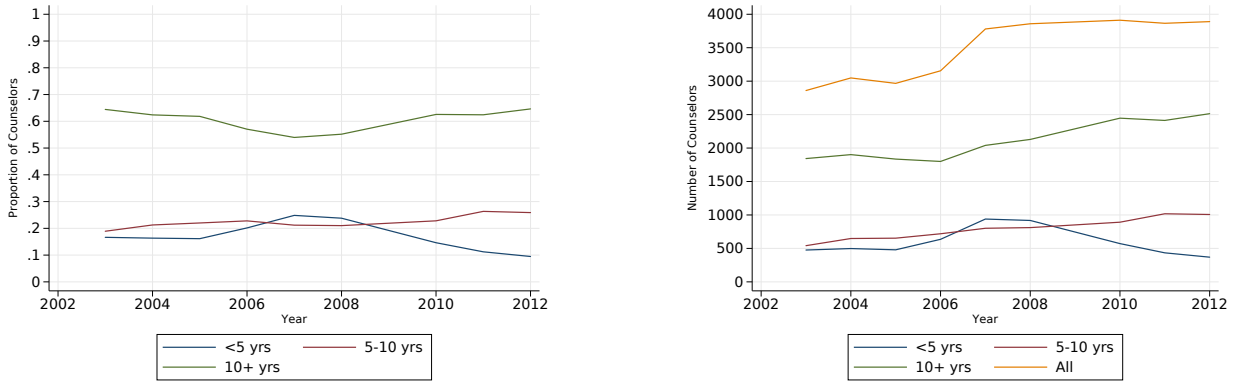
(a) Counselors (b) Counselor Ratios

Notes: Figures display (a) trends in the total number of counselors employed at California high schools in our analytic sample and (b) average student-to-counselor ratios from 2003-2012.

Figure 3: Trends in Counselor Characteristics



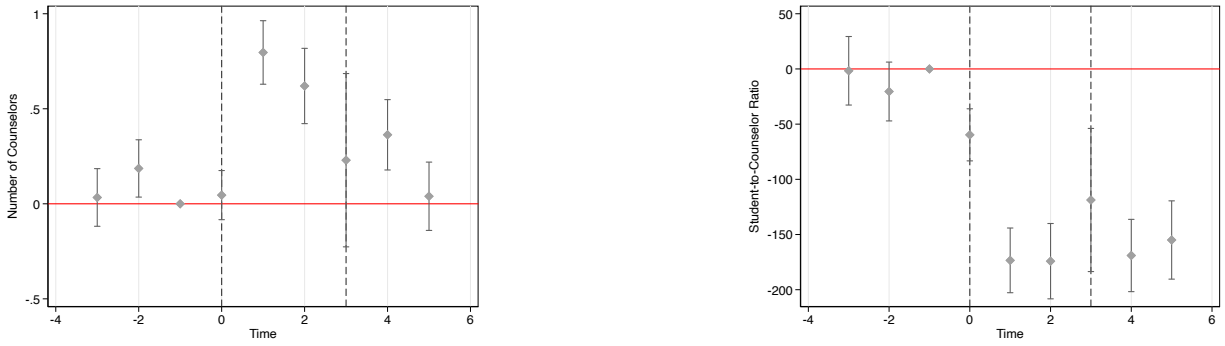
(a) Race/Ethnicity (b) Employment Status



(c) Experience Level (Proportion) (d) Experience Level (Number)

Notes: Figures display trends in counselor employment and demographic characteristics from 2003-2012. Panels (c) and (d) show the proportion and total number of counselors by experience level, respectively, as broken down by whether schools reported counselors as having less than 5, 5 to 10, or more than 10 years of counseling experience.

Figure 4: Effects on Counselor Outcomes

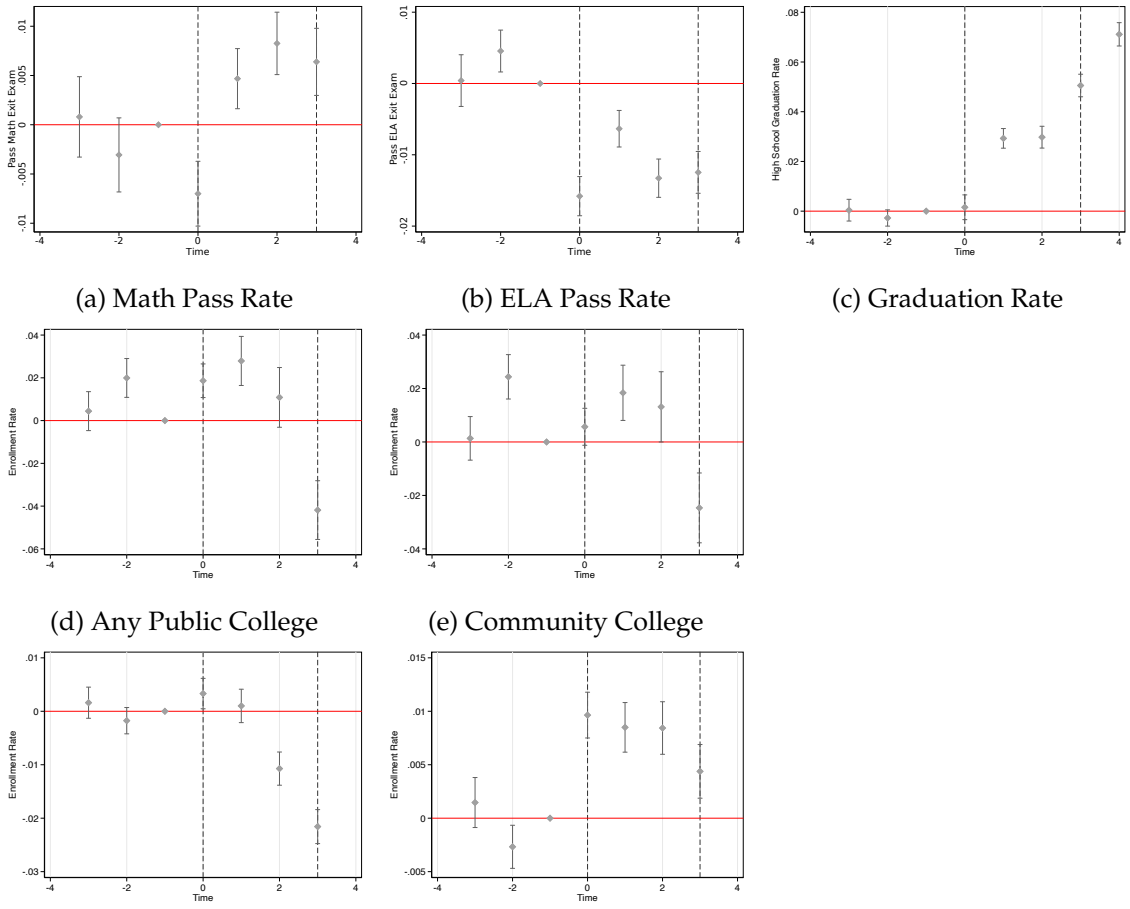


(a) Counselors

(b) Counselor Ratio

Notes: Panels (a) and (b) show event study estimates as specified in equation 2. Panel (a) shows effects on the number of high school counselors and (b) shows effects on student-to-counselor ratios for schools in our analytic sample. Time 0 coincides with the first year a school received SSCP funds.

Figure 5: Effects on High School & College Enrollment Outcomes



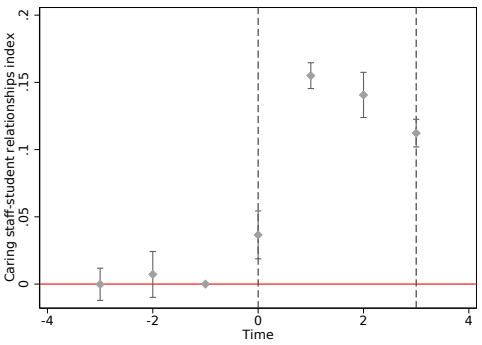
(a) Math Pass Rate (b) ELA Pass Rate (c) Graduation Rate

(d) Any Public College (e) Community College

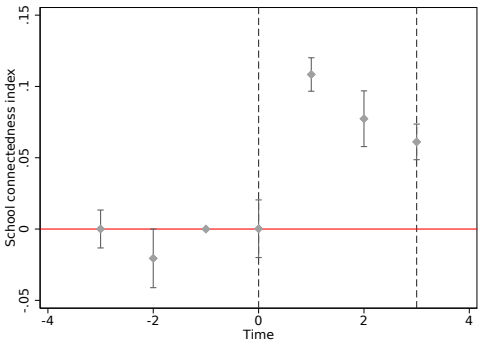
(f) CSU (g) UC

Notes: Panels show event study estimates as specified in equation 2 for students and schools in our analytic sample. The first row is based on student level data and the remaining rows are based on school level data. ELA and math correspond to English Language Arts and Math pass rates on the California high school exit exam. High school graduation rate is staggered by 2 years; for instance, the graduation rate for 2006 reports on the graduation rate for students who were sophomores in 2006, since this is the year they first took the high school exit exam. Effects on college enrollment outcomes include enrollment in community college, California State Universities, University of California schools, or any California public college. Time 0 coincides with the first year a school received SSCP funds.

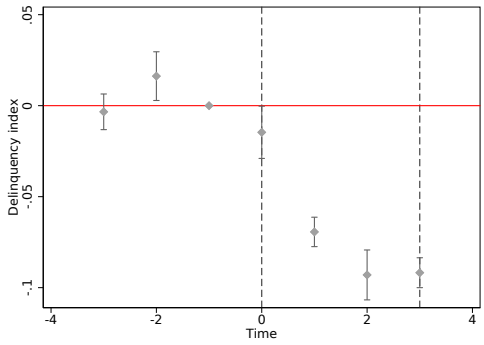
Figure 6: Event Study Results: Indices of School Climate Outcomes



(a) Caring Staff-Student Relationships



(b) School Connectedness



(c) Delinquency

Notes: Event study plots show coefficients from equation 2 for high schools in our analytic sample and control for linear time trends in the pre-period.

A Additional Tables and Figures

Table A.1: Characteristics of High Schools with and without College Enrollment Data

	Missing (1)	Non-Missing (2)	Difference in Means (3)	P-Value (4)
Demographic Characteristics				
Share FRPL	0.503	0.402	-0.101	0.000
Female	0.415	0.491	0.075	0.000
Asian	0.030	0.086	0.056	0.000
Hispanic	0.531	0.393	-0.138	0.000
Black	0.099	0.070	-0.029	0.003
White	0.281	0.378	0.097	0.000
Rural	0.143	0.209	0.066	0.102
Urban	0.938	0.767	-0.170	0.000
High School Outcomes				
Graduation Rate	0.828	0.902	0.074	0.000
ELA	0.353	0.779	0.426	0.000
Math	0.309	0.775	0.466	0.000
Counselor Characteristics				
Counselor Ratio	214.007	493.715	279.708	0.000
Counselors	1.263	3.516	2.253	0.000
0-5 Years of Experience	0.195	0.703	0.508	0.000
5-10 Years of Experience	0.220	0.757	0.537	0.000
10+ Years of Experience	0.848	2.056	1.208	0.000
N	112	877		

Notes: Missing indicates schools without any available college enrollment data. P-values are reported from a ttest of the difference in means between high schools with and without college enrollment data.

Table A.2: Survey Items in Each Index

Characteristics
(A) **Caring Staff-Student Relationships**
Teacher or adult who really cares about me
Teacher or adult who tells me when I do a good job
Teacher or adult who notices when I'm not there
Teacher or adult who always wants me to do my best
Teacher or adult who listens to me when I have something to say
Teacher or adult who believes that I will be a successful student
(B) **School Connectedness**
I feel close to people at this school.
I am happy to be at this school.
I feel like I am part of this school.
The teachers at this school treat students fairly.
I feel safe in my school.
(C) **Delinquency**
Been in a physical fight at school (12 months)
Damaged school property on purpose at school (12 months)
Carried a gun at school (12 months)
Carried any other weapon at school (12 months)
Been threatened or injured with a weapon at school (12 months)
Seen someone carrying a gun, knife, or other weapon at school (12 months)

Notes: This table lists the survey items included in each survey index. We follow the indices and weighting recommended by the confirmatory factor analysis model described in Mehecha and Hanson (2020). If a student is missing a response for some categories of an index, we construct the index based on the non-missing items.

Table A.3: High School Characteristics

Year	Enrollment (1)	Female (2)	Asian (3)	Black (4)	Hispanic (5)	White (6)	Share FRPL (7)
2003	1327	0.47	0.07	0.07	0.37	0.42	.
2004	1325	0.48	0.07	0.08	0.38	0.41	0.35
2005	1320	0.48	0.07	0.08	0.39	0.40	0.35
2006	1302	0.48	0.07	0.07	0.40	0.38	0.39
2007	1290	0.48	0.07	0.07	0.41	0.37	0.43
2008	1267	0.48	0.07	0.07	0.42	0.36	0.45
2009	1256	0.48	0.07	0.07	0.44	0.34	0.49
2010	1234	0.48	0.07	0.07	0.46	0.33	0.48
2011	1219	0.47	0.07	0.07	0.47	0.32	0.39
2012	1195	0.47	0.07	0.07	0.48	0.31	0.55
Year	Graduation Rate (1)	ELA (2)	Math (3)	CC Share (4)	CSU Share (5)	UC Share (6)	Public College Share (7)
2003	0.90	0.68	0.66	0.28	0.10	0.08	0.46
2004	0.90	0.69	0.66	0.30	0.10	0.07	0.47
2005	0.88	0.69	0.68	0.28	0.11	0.07	0.46
2006	0.88	0.69	0.68	0.27	0.12	0.08	0.47
2007	0.88	0.71	0.69	0.28	0.13	0.08	0.49
2008	0.86	0.71	0.70	0.28	0.12	0.08	0.48
2009	0.88	0.72	0.72	0.26	0.12	0.07	0.45
2010	0.85	0.80	0.79	.	.	.	.
2011	0.86	0.73	0.72	.	.	.	.
2012	0.89	0.73	0.73	.	.	.	.

Notes: Reported school characteristics include average high school enrollment, gender and racial composition of the student body, and the proportion of students who are eligible for free or reduced price lunch. Reported outcomes include average four-year high school graduation rate and the California High School Exit Exam (CAHSEE) pass rates for grade 10 students in English Language Arts and Math. CC, CSU, and UC share refers to the proportion of students who enrolled in a California public community college, California State University, and University of California school, respectively. Public college share captures the percent of students who enrolled in either any California public college. Summary statistics are for all high schools besides those in the Los Angeles Unified School District, including high schools that reported having no counselors prior to the start of SSCP.

Table A.4: Summary Statistics for Student Survey Sample

(A) Student Characteristics	
Asian	0.14
Black	0.06
Hispanic	0.40
White	0.32
Other Race	0.13
Missing Race/Ethnicity	0.00
Female	0.52
Male	0.48
Missing sex	0.01
Age	15.17
9th Grade	0.54
11th Grade	0.46
(B) School Characteristics	
School Enrollment	2,219
Free/Reduced Lunch	0.33
Rural	0.09
Urban	0.67
HS Graduation Rate	0.92
ELA Exam	0.82
Math Exam	0.83
Students	922,223

Notes: Panel A describes the characteristics of the students who responded to the survey. Panel B describes the characteristics of the schools in which students are located (weighted by the number of students responding from each school. The exam variables refer to the average share of questions on the high school exit exam that students answered correctly.

Table A.5: Summary Statistics for Student Survey Sample over Time

	2003	2004	2005	2006	2007	2008	2009	2010
(A) Student Characteristics								
Asian	0.14	0.10	0.15	0.05	0.15	0.12	0.23	0.19
Black	0.05	0.06	0.06	0.04	0.06	0.06	0.08	0.16
Hispanic	0.34	0.40	0.39	0.59	0.41	0.45	0.40	0.30
White	0.37	0.35	0.32	0.25	0.29	0.29	0.20	0.05
Other Race	0.13	0.13	0.13	0.09	0.13	0.12	0.13	0.27
Missing Race/Ethnicity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
Female	0.53	0.52	0.51	0.51	0.51	0.51	0.51	0.50
Male	0.46	0.47	0.48	0.48	0.48	0.48	0.48	0.49
Missing sex	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Age	15.12	15.15	15.14	15.23	15.20	15.24	15.27	15.30
9th Grade	0.55	0.56	0.55	0.52	0.53	0.53	0.53	0.59
11th Grade	0.45	0.44	0.45	0.48	0.47	0.47	0.47	0.41
(B) School Characteristics								
School Enrollment	2186.12	2269.21	2249.37	1647.60	2255.98	2148.44	1966.71	1647.04
Free/Reduced Lunch	0.27	0.32	0.31	0.54	0.35	0.42	0.36	0.49
Rural	0.07	0.12	0.08	0.11	0.09	0.13	0.02	0.00
Urban	0.91	0.86	0.89	0.39	0.44	0.28	0.56	1.00
HS Graduation Rate	0.95	0.94	0.93	0.89	0.90	0.89	0.89	0.61
ELA Exam	0.82	0.80	0.82	0.77	0.83	0.82	0.83	0.75
Math Exam	0.82	0.80	0.82	0.78	0.84	0.84	0.83	0.74
Students	164,558	125,961	218,413	6410	260,840	128,185	16,669	1,187

Notes: Panel A describes the characteristics of the students who responded to the survey. Panel B describes the characteristics of the schools in which students are located (weighted by the number of students responding from each school. The exam variables refer to the average share of questions on the high school exit exam that students answered correctly.

Table A.6: High School Characteristics, by SSCP Takeup

	Used SSCP Funds (1)	Never Used SSCP Funds (2)	Difference in Means (3)	P-Value (4)
Demographic Characteristics				
Share FRPL	0.423	0.434	0.010	0.711
Female	0.477	0.479	0.002	0.772
Asian	0.071	0.028	-0.043	0.001
Hispanic	0.418	0.296	-0.122	0.000
Black	0.078	0.044	-0.033	0.006
White	0.359	0.521	0.162	0.000
Rural	0.190	0.506	0.316	0.000
Urban	0.337	0.416	0.078	0.159
High School Outcomes				
Graduation Rate	0.874	0.855	-0.019	0.225
SAT	0.310	0.251	-0.060	0.050
ACT	0.143	0.141	-0.002	0.906
ELA	0.692	0.733	0.040	0.182
Math	0.683	0.708	0.025	0.434
CC Share	0.278	0.169	-0.109	0.000
CSU Share	0.123	0.074	-0.048	0.000
UC Share	0.077	0.042	-0.036	0.000
Public College Share	0.478	0.285	-0.193	0.000
Counselor Characteristics				
Counselor Ratio	464.492	351.165	-113.327	0.041
Counselors	2.731	1.403	-1.328	0.000
0-5 Years of Experience	0.633	0.320	-0.313	0.001
5-10 Years of Experience	0.595	0.232	-0.363	0.000
10+ Years of Experience	1.503	0.851	-0.652	0.001
N	1287	77		

Notes: Data include all reporting California high schools, not just those in our analytic sample. We report the average high school demographic characteristics, outcomes, and counselor characteristics for high schools in districts that ever or never received SSCP funds between 2006 and 2008. P-values are reported from a ttest of the difference in means between high schools in districts that received any SSCP funding between 2006 and 2008 versus those in districts that never received SSCP funding. Counselor characteristics related to years of experience indicate the average number of counselors per school within each experience band.

Table A.7: Counselor Characteristics, by School Type

	High FRPL (1)	Urban (2)	Rural (3)	All (4)
(A) Non-White Counselors				
2005	.512	.358	.298	.344
2006	.467	.377	.303	.337
2007	.477	.409	.294	.356
2008	.457	.394	.327	.353
(B) Male Counselors				
2005	.318	.289	.294	.292
2006	.286	.258	.305	.279
2007	.276	.240	.263	.259
2008	.265	.258	.259	.265
(C) Temporary Counselors				
2005	.205	.181	.274	.191
2006	.217	.187	.259	.212
2007	.252	.223	.259	.253
2008	.227	.237	.234	.230
(D) Least Experienced Counselors				
2005	.182	.169	.185	.167
2006	.220	.198	.224	.198
2007	.223	.218	.244	.232
2008	.229	.248	.247	.234

Notes: Data are limited to schools that ever used SSCP funds to hire counselors from 2006-2008. Temporary counselors refers to the proportion of counselors with temporary status; counselors are typically hired for two years before receiving tenure status. Least experienced counselors are those with 0-5 years of experience reported. High FRPL schools are those with at least 50 percent of students eligible for free or reduced price lunch.

Table A.8: Impacts of SSCP on Total Counselor Spending

	(1)	(2)	(3)
SSCP Spending	0.681***	0.681***	0.964***
	(0.020)	(0.020)	(0.018)
Observations	2,758	2,695	2,458
Limited to Program Years	Yes	Yes	Yes
Limited to Ever Treated	No	Yes	No
Limited to Treated	No	No	Yes

Notes: Coefficient estimates for SSCP Spending are taken from a regression of total counselor spending on SSCP spending and indicate how much total counselor spending increased for every dollar increase in SSCP spending (*p<.10 **p<.05 *** p<.01). All regressions include district fixed effects and are limited to program years (2006-2008) and to districts in our analytic sample.

Table A.9: Intent-to-treat Effects on Counselor and Academic Outcomes

	Total Counselors (1)	Counselor Ratio (2)	High School Graduation (3)	CC Share (4)	CSU Share (5)	UC Share (6)	Public College Share (7)
(A) Main Estimates							
SSCP	0.607***	-168.873***	0.032***	0.005	-0.004***	0.011***	0.012***
	(0.053)	(8.410)	(0.001)	(0.004)	(0.001)	(0.001)	(0.004)
N	4,459	4,081	4,341	3,639	3,639	3,639	3,639
(B) With Controls							
SSCP	0.652***	-178.139***	0.030***	-0.011	-0.007***	0.013***	-0.004
	(0.103)	(19.319)	(0.003)	(0.007)	(0.002)	(0.001)	(0.007)
N	4,365	3,991	4,276	3,564	3,564	3,564	3,564

Notes: Intent-to-treat estimates are based on 2003-2008 and treatment timing is the same for all schools that received SSCP funds. All regressions include school fixed effects and control for linear time trends in the preperiod, or years prior to policy implementation in 2006. Estimates in panel (B) are based on regressions which control for instructional spending levels at the district, the share of students receiving free or reduced-price lunch in the school, the share of students in the school who are female, the share of students in the school who are Asian, Hispanic, Black, or White, and indicators for whether the school is in a rural or urban area. N reports on the number of school by year clusters. Heteroskedasticity robust standard errors clustered by school are in parentheses. (*p<.10 **p<.05 *** p<.01).

Table A.10: ITT Estimates for CAHSEE Achievement

	Math Pass Rate (1)	ELA Pass Rate (2)	Overall Pass Rate (3)	Math Scale Score (4)	ELA Scale Score (5)
(A) Main Estimates					
SSCP	0.007***	-0.011***	-0.000	1.779***	-0.831***
	(0.002)	(0.001)	(0.002)	(0.150)	(0.147)
(B) With Controls					
SSCP	0.007***	-0.007***	0.003	1.865***	0.324*
	(0.002)	(0.002)	(0.002)	(0.190)	(0.195)

Notes: Heteroskedasticity robust standard errors clustered by school and year are in parentheses. (*p<.10 **p<.05 *** p<.01). All regressions include school fixed effects and control for linear time trends in the preperiod. Estimates in panel (B) are based on regressions which control for instructional spending levels at the district, the share of students receiving free or reduced-price lunch in the school, student gender, student socioeconomic disadvantage, student race/ethnicity, and indicators for whether the school is in a rural or urban area. Overall pass rate refers to passing both the math and ELA exams. Pass rates are only based on students who take the test in 10th grade. These estimates are based on 2003-2008 but the first year of the program, 2006, is excluded. These are ITT estimates where treatment is defined to occur at the same time for everyone based on when the state policy started in 2006.

Table A.11: ITT Estimates for Student Survey Responses

	Caring Staff-Student Relationships (1)	School Connectedness (2)	Delinquency (3)
(A) Main Estimates			
SSCP	0.147***	0.105***	-0.078***
	(0.004)	(0.004)	(0.003)
(B) With Controls			
SSCP	0.142***	0.105***	-0.070***
	(0.006)	(0.007)	(0.005)
N	871,012	878,601	889,996

Notes: Heteroskedasticity robust standard errors clustered by school and year are in parentheses. (*p<.10 **p<.05 *** p<.01). All regressions include school fixed effects and control for linear time trends in the preperiod, or years prior to policy implementation in 2006. Estimates in panel (B) are based on regressions which control for instructional spending levels at the district, the share of students receiving free or reduced-price lunch in the school, indicators for whether the school is in a rural or urban area, and indicators for whether the student is female, Asian, Hispanic, Black or White, the student's age and grade. These estimates are based on 2003-2008 but the first year of the program, 2006, is excluded. These are ITT estimates where treatment is defined to occur at the same time for everyone based on when the state policy started in 2006. Estimates are in standard deviations.

Table A.12: Effects on Counselor and Academic Outcomes, Inclusive of First Year Effects

	Total Counselors (1)	Counselor Ratio (2)	High School Graduation (3)	CC Share (4)	CSU Share (5)	UC Share (6)	Public College Share (7)
(A) Main Estimates							
SSCP	0.679***	-152.467***	0.030***	0.008**	-0.005***	0.007***	0.009**
	(0.051)	(8.034)	(0.001)	(0.003)	(0.001)	(0.001)	(0.004)
(B) With Controls							
SSCP	0.700***	-129.667***	0.030***	0.002	-0.008***	0.002**	-0.004
	(0.066)	(11.982)	(0.002)	(0.005)	(0.001)	(0.001)	(0.005)
N	5,135	4,682	5,130	4,183	4,183	4,183	4,183

Notes: All regressions include school fixed effects and control for linear time trends in the preperiod, or years prior to policy implementation in 2006. Estimates in panel (B) are based on regressions which control for instructional spending levels at the district, the share of students receiving free or reduced-price lunch in the school, the share of students in the school who are female, the share of students in the school who are Asian, Hispanic, Black, or White, and indicators for whether the school is in a rural or urban area. These estimates are based on 2003-2008 and treatment is determined by when the school first received SSCP funds; estimates include the first year of treatment. N reports on the number of school by year clusters. Heteroskedasticity robust standard errors clustered at the school by year level are in parentheses. (*p<.10 **p<.05 *** p<.01).

Table A.13: Estimates for CAHSEE Achievement Including First Year

	Math Pass Rate (1)	ELA Pass Rate (2)	Overall Pass Rate (3)	Math Scale Score (4)	ELA Scale Score (5)
(A) Main Estimates					
SSCP	0.007***	-0.011***	-0.000	1.760***	-0.757***
	(0.002)	(0.001)	(0.002)	(0.149)	(0.145)
(B) With Controls					
SSCP	0.007***	-0.006***	0.003	1.848***	0.566***
	(0.002)	(0.002)	(0.002)	(0.184)	(0.187)

Notes: Heteroskedasticity robust standard errors clustered by school and year are in parentheses. (*p<.10 **p<.05 *** p<.01). All regressions include school fixed effects and control for linear time trends in the preperiod. Estimates in panel (B) are based on regressions which control for instructional spending levels at the district, the share of students receiving free or reduced-price lunch in the school, student gender, student socioeconomic disadvantage, student race/ethnicity, and indicators for whether the school is in a rural or urban area. Overall pass rate refers to passing both the math and ELA exams. Pass rates are only based on students who take the test in 10th grade. These estimates are based on 2003-2008 but the first year of the program, 2006, is excluded. These estimates are based on 2003-2008 and include the first year schools are treated by SSCP. Treatment is determined by when the school first received SSCP funds.

Table A.14: Estimates for Student Survey Responses including First Year

	Caring Staff-Student Relationships (1)	School Connectedness (2)	Delinquency (3)
(A) Main Estimates			
SSCP	0.142***	0.099***	-0.077***
	(0.003)	(0.004)	(0.003)
(B) With Controls			
SSCP	0.135***	0.095***	-0.073***
	(0.005)	(0.005)	(0.004)
N	992,996	1,001,472	1,018,679

Notes: Heteroskedasticity robust standard errors clustered by school and year are in parentheses. (*p<.10 **p<.05 *** p<.01). All regressions include school fixed effects and control for linear time trends in the preperiod, or years prior to policy implementation in 2006. Estimates in panel (B) are based on regressions which control for instructional spending levels at the district, the share of students receiving free or reduced-price lunch in the school, indicators for whether the school is in a rural or urban area, and indicators for whether the student is female, Asian, Hispanic, Black or White, the student's age and grade. These estimates are based on 2003-2008 and include the first year schools are treated by SSCP. Treatment is determined by when the school first received SSCP funds. Estimates are in standard deviations.

Table A.15: Impacts on Perception of School Climate

	Adult at school cares (1)	Feel close to people at school (2)	Feel safe at school (3)	Adult tells me good job (4)	Adult notices me (5)	Adult wants what is best (6)	Adult listens to me (7)	Adult believes in me (8)
(A) Main Estimates								
SSCP	0.061***	0.058***	0.120***	0.139***	0.090***	0.164***	0.111***	0.104***
	(0.003)	(0.003)	(0.005)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
(B) With Controls								
SSCP	0.063***	0.064***	0.121***	0.144***	0.095***	0.173***	0.117***	0.107***
	(0.006)	(0.006)	(0.008)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
N	858,603	871,975	871,734	859,323	858,434	855,040	857,713	855,859

Notes: Heteroskedasticity robust standard errors clustered by school and year are in parentheses. (*p<.10 **p<.05 *** p<.01). All regressions include school fixed effects and control for linear time trends in the preperiod, or years prior to policy implementation in 2006. Estimates in panel (B) are based on regressions which control for instructional spending levels at the district, the share of students receiving free or reduced-price lunch in the school, indicators for whether the school is in a rural or urban area, and indicators for whether the student is female, Asian, Hispanic, Black or White, the student's age and grade. These estimates are based on 2003-2008 and the first year of treatment is excluded. Treatment is determined by when the school first received SSCP funds.

Table A.16: Impacts on CAHSEE Achievement by School Characteristics

	Math Pass Rate (1)	ELA Pass Rate (2)	Overall Pass Rate (3)	Math Scale Score (4)	ELA Scale Score (5)
(A) By Share of FRPL Students					
High Poverty	0.033***	0.006**	0.024***	2.955***	0.273
	(0.003)	(0.002)	(0.003)	(0.208)	(0.206)
Low Poverty	-0.005***	-0.019***	-0.011***	1.241***	-1.149***
	(0.001)	(0.001)	(0.001)	(0.121)	(0.117)
P-value Difference	0.00	0.00	0.00	0.00	0.00
High Poverty Mean	0.73	0.72	0.65	373.86	370.20
Low Poverty Mean	0.85	0.86	0.81	390.39	388.66
(B) By Urbanicity					
Urban	0.010***	-0.011***	0.001	1.827***	-0.838***
	(0.002)	(0.002)	(0.002)	(0.164)	(0.168)
Rural	0.004	-0.012***	-0.003	1.385***	-0.694*
	(0.005)	(0.004)	(0.005)	(0.419)	(0.400)
P-value Difference	0.02	0.41	0.05	0.02	0.73
Urban Mean	0.80	0.80	0.74	383.54	381.35
Rural Mean	0.83	0.83	0.78	386.62	383.96
(C) By School Size					
Large	0.009***	-0.010***	0.002	2.034***	-0.854***
	(0.001)	(0.001)	(0.002)	(0.133)	(0.131)
Medium	0.001	-0.015***	-0.005***	1.136***	-0.582***
	(0.002)	(0.002)	(0.002)	(0.184)	(0.179)
Small	0.011***	-0.019***	-0.002	1.566***	-0.676**
	(0.004)	(0.003)	(0.004)	(0.347)	(0.320)
P-value Difference Large-Med	0.01	0.01	0.01	0.00	0.20
P-value Difference Large-Small	0.00	0.04	0.00	0.00	0.27
P-value Difference Med-Small	0.25	0.04	0.59	0.58	0.76
Large Mean	0.81	0.81	0.75	384.79	382.05
Medium Mean	0.83	0.82	0.77	386.55	384.41
Small Mean	0.76	0.77	0.70	378.37	378.01
N	1,645,209	1,654,372	1,623,818	1,661,770	1,662,199

Notes: Heteroskedasticity robust standard errors clustered by school and year are in parentheses. (*p<.10 **p<.05 *** p<.01). All regressions include school fixed effects and control for linear time trends in the preperiod. These estimates are based on 2003-2008 and the first year of treatment is excluded. Treatment is determined by when the school first received SSCP funds. All panels include p-values reporting whether the coefficients for the different groups are significantly different from one another. Mean outcomes for each group are also reported. Estimates are in standard deviations.

Table A.17: Impacts on Student Survey Indices by School Characteristics

	Caring Staff-Student Relationships (1)	School Connectedness (2)	Delinquency (3)
(A) By Share of FRPL Students			
High Poverty	0.172***	0.106***	-0.077***
	(0.009)	(0.012)	(0.008)
Low Poverty	0.152***	0.106***	-0.079***
	(0.006)	(0.007)	(0.005)
P-value Difference	0.03	0.95	0.82
High Poverty Mean	-0.07	-0.11	-0.01
Low Poverty Mean	0.00	0.03	-0.09
(B) By Urbanicity			
Urban	0.147***	0.094***	-0.071***
	(0.006)	(0.008)	(0.006)
Rural	0.181***	0.141***	-0.107***
	(0.013)	(0.018)	(0.011)
P-value Difference	0.01	0.01	0.01
Urban Mean	-0.06	-0.05	-0.05
Rural Mean	0.03	0.04	-0.08
(C) By School Size			
Large	0.149***	0.105***	-0.070***
	(0.007)	(0.009)	(0.006)
Medium	0.168***	0.110***	-0.087***
	(0.008)	(0.009)	(0.006)
Small	0.135***	0.088***	-0.093***
	(0.014)	(0.015)	(0.010)
P-value Difference Large-Med	0.08	0.89	0.00
P-value Difference Large-Small	0.01	0.45	0.03
P-value Difference Med-Small	0.11	0.19	0.12
Large Mean	-0.03	-0.02	-0.06
Medium Mean	-0.00	-0.00	-0.06
Small Mean	0.05	0.02	-0.05
N	874,863	882,422	894,085

Notes: Heteroskedasticity robust standard errors clustered by school and year are in parentheses. (*p<.10 **p<.05 *** p<.01). All regressions include school fixed effects, control for linear time trends in the preperiod, instructional spending levels at the district, the share of students receiving free or reduced-price lunch in the school, indicators for whether the school is in a rural or urban area, and indicators for whether the student is female, Asian, Hispanic, Black or White, the student's age and grade. These estimates are based on 2003-2008 and the first year of treatment is excluded. Treatment is determined by when the school first received SSCP funds. All panels include p-values reporting whether the coefficients for the different groups are significantly different from one another. Mean outcomes for each group are also reported. Estimates are in standard deviations.

Table A.18: Effects on Counselor and Academic Outcomes, by Counselor Experience

	Total Counselors (1)	Counselor Ratio (2)	High School Graduation (3)	CC Share Taking (4)	CSU Share (5)	UC Share (6)	Public College Share (7)
(A) Main Estimates							
Increase	0.897***	-138.010***	0.016***	0.004	-0.006***	0.007***	0.005
	(0.095)	(17.709)	(0.002)	(0.007)	(0.002)	(0.001)	(0.007)
Decrease	0.570***	-171.719***	0.010***	0.010*	-0.005***	0.008***	0.013**
	(0.089)	(11.093)	(0.002)	(0.005)	(0.001)	(0.001)	(0.005)
No Change	0.617***	-160.992***	0.013***	0.016**	-0.003	0.010***	0.023***
	(0.076)	(19.478)	(0.002)	(0.007)	(0.002)	(0.001)	(0.008)
(B) With Controls							
Increase	0.950***	-157.211***	0.020***	-0.014	-0.010***	0.009***	-0.016
	(0.134)	(23.472)	(0.003)	(0.009)	(0.002)	(0.002)	(0.010)
Decrease	0.633***	-189.192***	0.015***	-0.011	-0.009***	0.010***	-0.010
	(0.126)	(19.710)	(0.003)	(0.008)	(0.002)	(0.002)	(0.009)
No Change	0.684***	-179.309***	0.018***	0.000	-0.006**	0.013***	0.007
	(0.119)	(29.059)	(0.003)	(0.009)	(0.003)	(0.002)	(0.010)
N	4,199	3,864	4,263	3,472	3,472	3,472	3,472

Notes: Coefficient estimates represent the change in outcomes of interest by whether schools that hired new counselors through SSCP spending increased, decreased, or had no change in the average years of counselor experience. All regressions include school fixed effects and controls for linear time trends in the pre-period. Estimates in panel (B) are based on regressions which control for instructional spending levels at the district, the share of students receiving free or reduced-price lunch in the school, the share of students in the school who are female, the share of students in the school who are Asian, Hispanic, Black, or White, and indicators for whether the school is in a rural or urban area. These estimates are based on 2003-2008 and treatment is determined by when the school first received SSCP funds. N reports on the number of school by year clusters. Heteroskedasticity robust standard errors clustered by school are in parentheses. (*p<.10 **p<.05 *** p<.01).

Table A.19: Effects on Counselor and Academic Outcomes Using School and Year Fixed Effects

	Total Counselors (1)	Counselor Ratio (2)	High School Graduation (3)	CC Share (4)	CSU Share (5)	UC Share (6)	Public College Share (7)
(A) Main Estimates							
SSCP	1.516***	-190.690***	0.016	0.045*	0.002	-0.016	0.031
	(0.347)	(50.359)	(0.016)	(0.024)	(0.009)	(0.010)	(0.025)
(B) With Controls							
SSCP	1.334***	-210.727***	0.016	0.027	-0.001	-0.013	0.013
	(0.301)	(49.479)	(0.015)	(0.024)	(0.009)	(0.009)	(0.026)
N	4,199	3,864	4,263	3,472	3,472	3,472	3,472

Notes: All regressions include school and year fixed effects. Estimates in panel (B) are based on regressions which control for instructional spending levels at the district, the share of students receiving free or reduced-price lunch in the school, the share of students in the school who are female, the share of students in the school who are Asian, Hispanic, Black, or White, and indicators for whether the school is in a rural or urban area. These estimates are based on 2003-2008 and treatment is determined by when the school first received SSCP funds. N reports on the number of school by year clusters. Heteroskedasticity robust standard errors clustered at the school by year level are in parentheses. (*p<.10 **p<.05 *** p<.01).

Table A.20: Estimates for CAHSEE Achievement with Year Fixed Effects

	Math Pass Rate (1)	ELA Pass Rate (2)	Overall Pass Rate (3)	Math Scale Score (4)	ELA Scale Score (5)
(A) Main Estimates					
SSCP	0.015	0.045***	0.027	1.555	2.232
	(0.017)	(0.015)	(0.017)	(2.030)	(1.993)
(B) With Controls					
SSCP	0.009	0.046***	0.025*	0.610	2.665**
	(0.015)	(0.012)	(0.015)	(1.527)	(1.332)
N	1,645,209	1,654,372	1,623,818	1,661,770	1,662,199

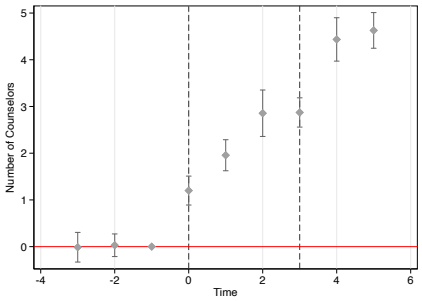
Notes: Heteroskedasticity robust standard errors clustered by school and year are in parentheses. (*p<.10 **p<.05 *** p<.01). All regressions include school and year fixed effects and control for linear time trends in the preperiod. Estimates in panel (B) are based on regressions which control for instructional spending levels at the district, the share of students receiving free or reduced-price lunch in the school, student gender, student socioeconomic disadvantage, student race/ethnicity, and indicators for whether the school is in a rural or urban area. Overall pass rate refers to passing both the math and ELA exams. Pass rates are only based on students who take the test in 10th grade. These estimates are based on 2003-2008 but the first year of treatment is excluded. Treatment is defined based on when a school first recieved SSCP funds.

Table A.21: Estimates for Student Survey Responses including Year Fixed Effects

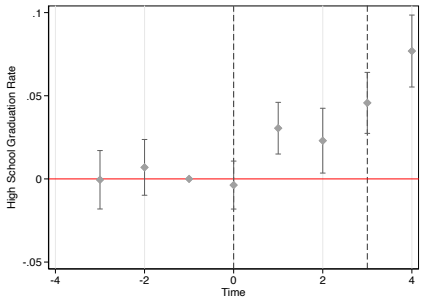
	Caring staff-Student Relationships (1)	School Connectedness (2)	Delinquency (3)
(A) Main Estimates			
SSCP	-0.035*	-0.006	0.048***
	(0.019)	(0.019)	(0.013)
(B) With Controls			
SSCP	-0.034*	-0.004	0.046***
	(0.018)	(0.018)	(0.012)
N	992,996	1,001,472	1,018,679

Notes: Heteroskedasticity robust standard errors clustered by school and year are in parentheses. (*p<.10 **p<.05 *** p<.01). All regressions include school and year fixed effects and control for linear time trends in the preperiod. Estimates in panel (B) are based on regressions which control for instructional spending levels at the district, the share of students receiving free or reduced-price lunch in the school, indicators for whether the school is in a rural or urban area, and indicators for whether the student is female, Asian, Hispanic, Black or White, the student's age and grade. These estimates are based on 2003-2008 and exclude the first year schools are treated by SSCP. Treatment is determined by when the school first received SSCP funds. Estimates are in standard deviations.

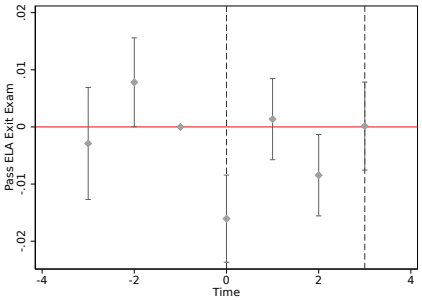
Figure A.1: Effects for Schools with No Counselors Pre-Policy



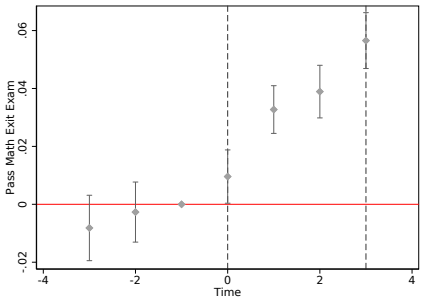
(a) Counselors



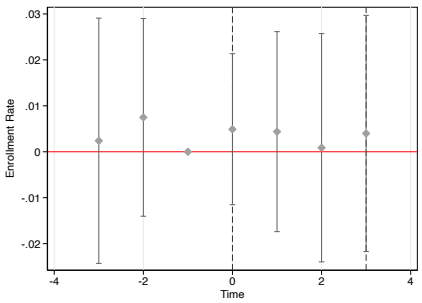
(b) Graduation Rate



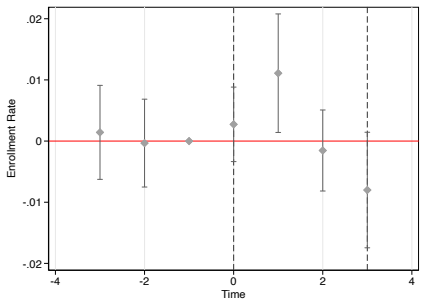
(c) ELA



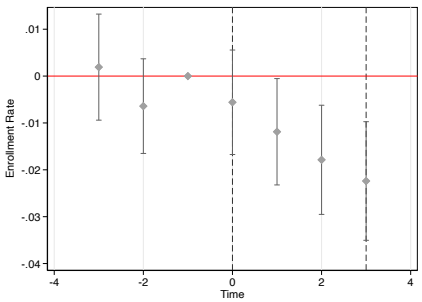
(d) Math



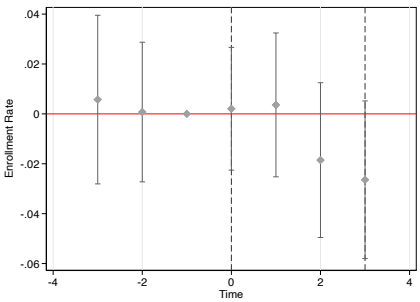
(e) CC Share



(f) CSU Share



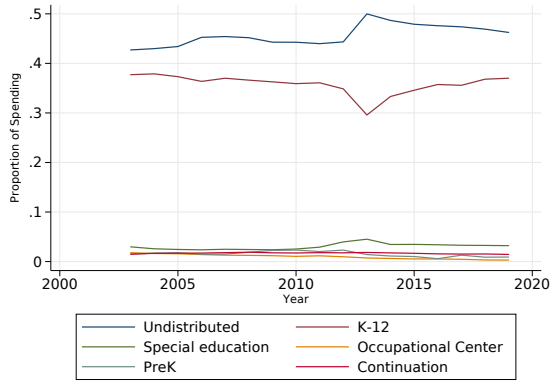
(g) UC Share



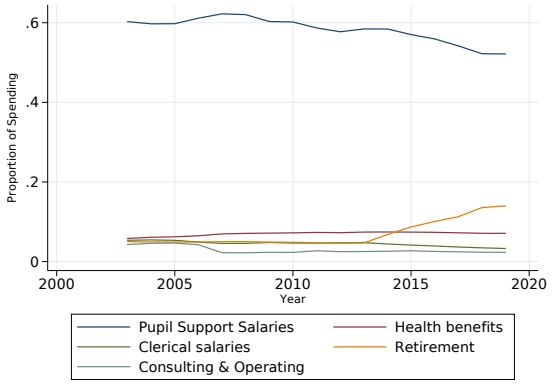
(h) Public College Share

Notes: Event study plots show coefficients from equation 2 for high schools that had zero counselors in 2005, the year prior to SSCP implementation. We omit counselor ratios as an outcome in these event study since estimates in the pre-period would be undefined.

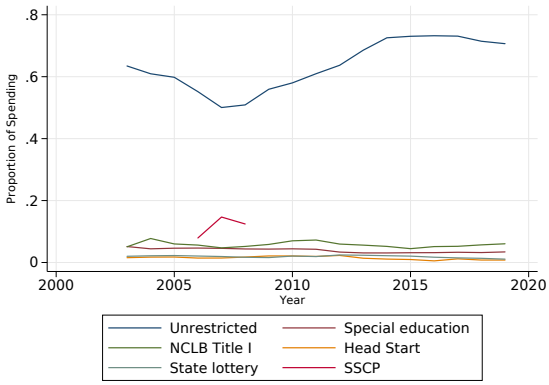
Figure A.2: Trends in Guidance Counselor Spending



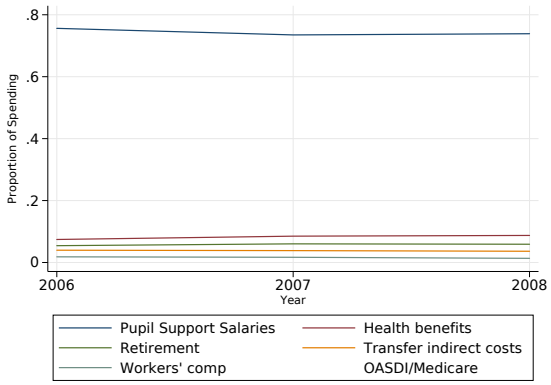
(a) GC Spending by Goal



(b) GC Spending by Object



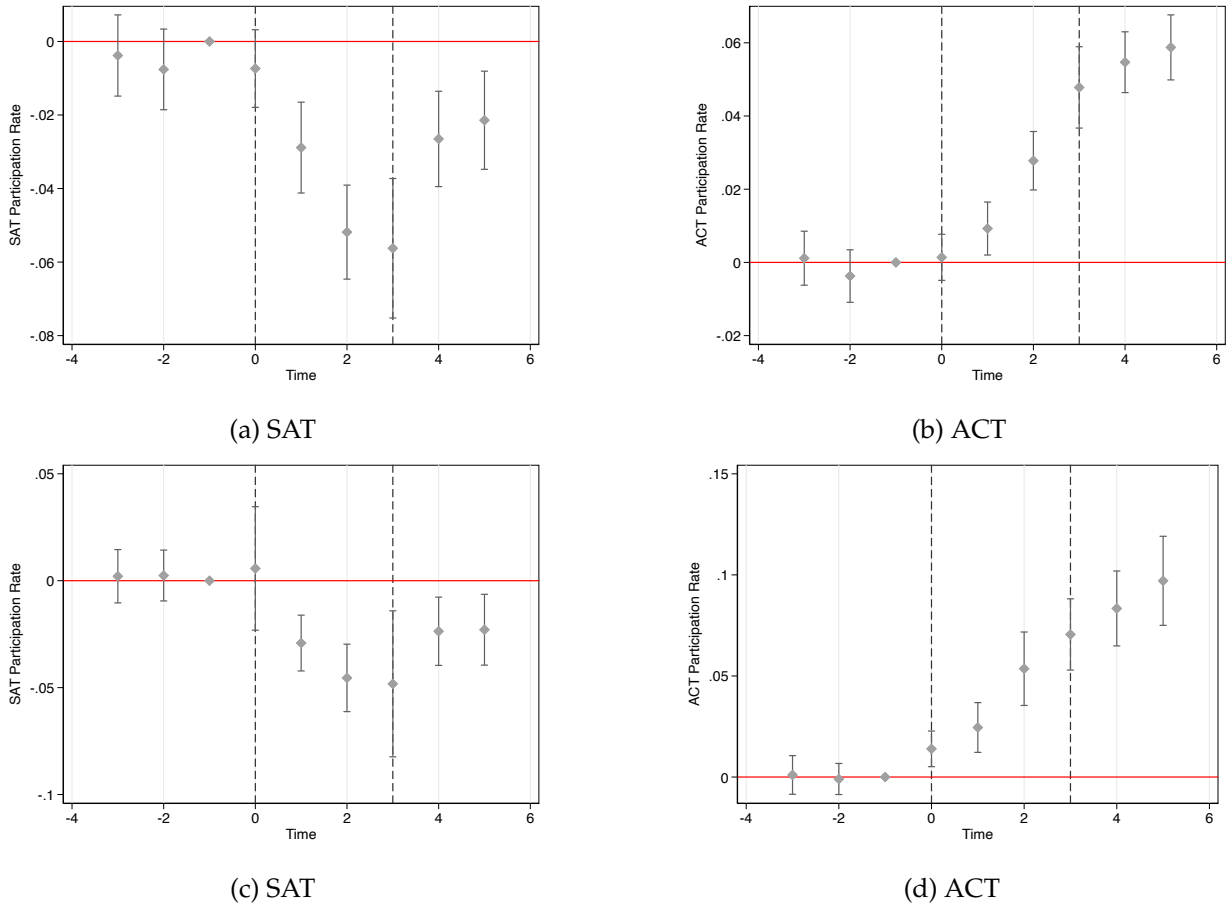
(c) GC Spending by Resource



(d) SSCP Spending by Object

Notes: Figures (a), (b), and (c) highlight trends in guidance counselor spending as broken down by spending goal, object, and resource as reported by California Department of Education (CDE). Figure (d) similarly shows SSCP spending broken down by spending object.

Figure A.3: Effects on SAT & ACT Test-Taking



(a) SAT

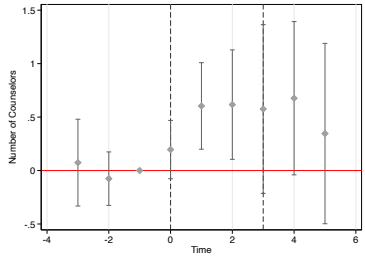
(b) ACT

(c) SAT

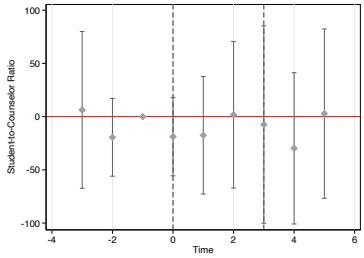
(d) ACT

Notes: Panels show event study estimates as specified in equation 2. Estimates in panels (a) and (b) correspond to the change in the percentage of students who took the SAT or ACT at schools in our analytic sample. Estimates in panels (c) and (d) correspond to changes in these same outcomes, but for schools that had no counselors prior to when the policy was implemented.

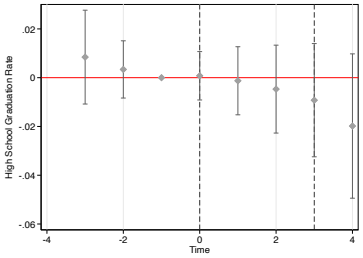
Figure A.4: Estimated Effects Using School and Year Fixed Effects



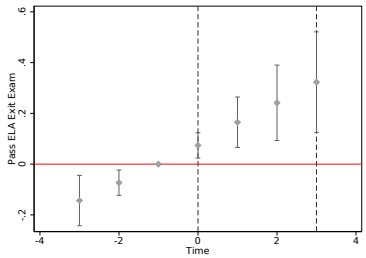
(a) Counselors



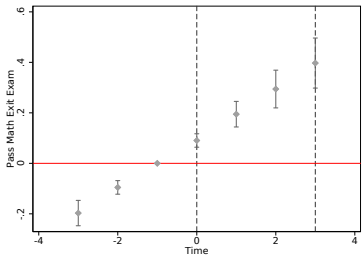
(b) Counselor Ratio



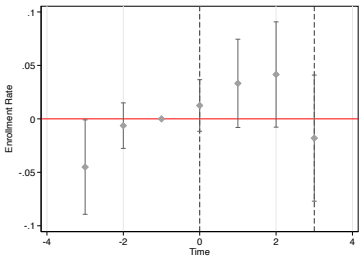
(c) Graduation Rate



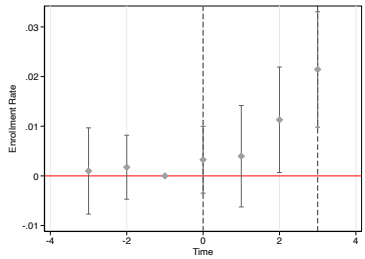
(d) ELA



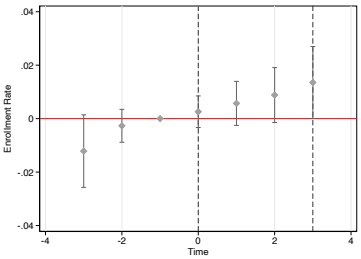
(e) Math



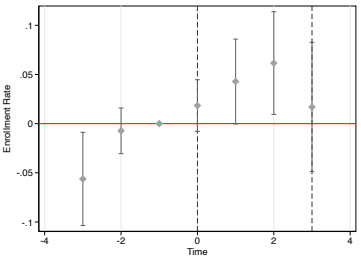
(f) CC Share



(g) CSU Share



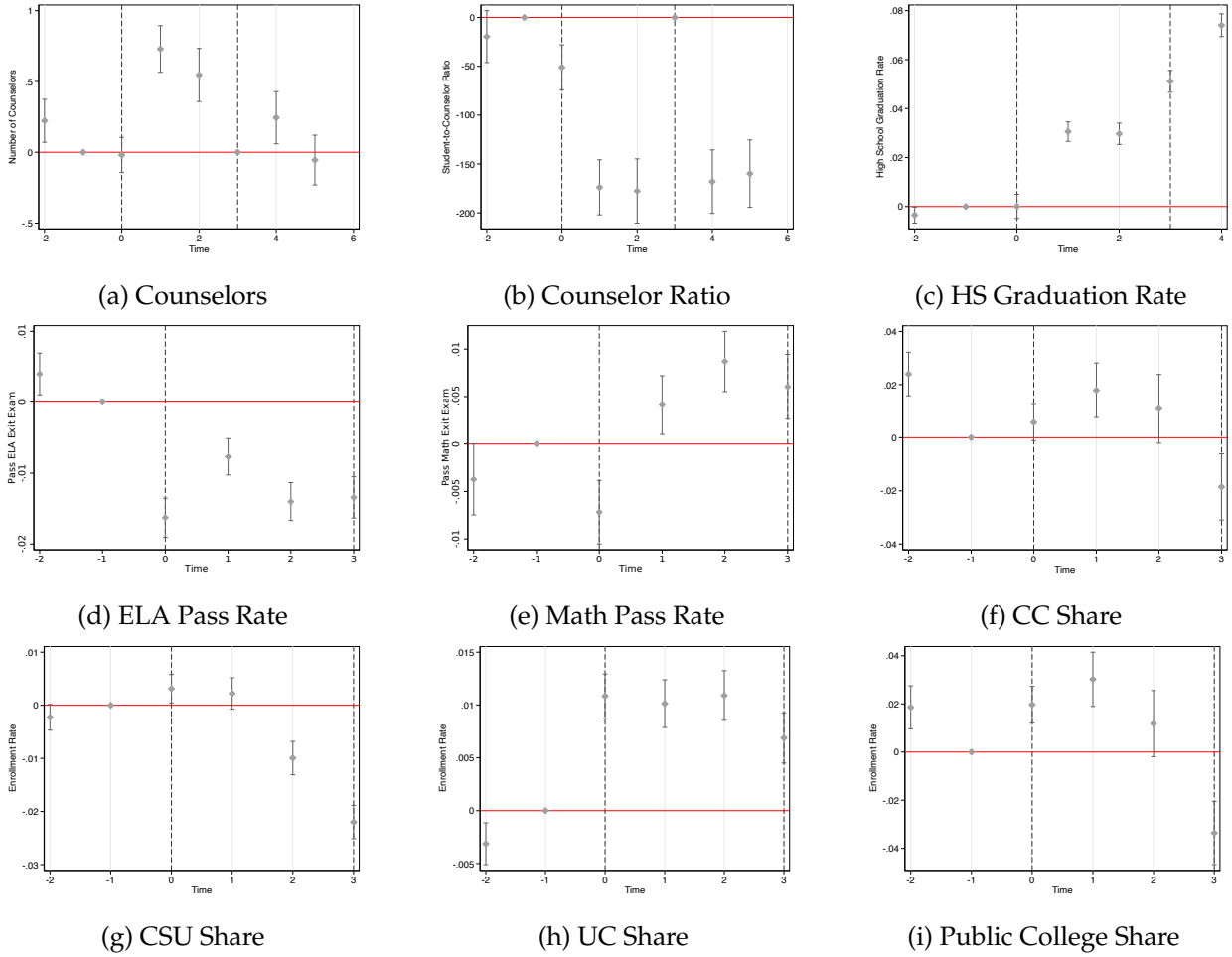
(h) UC Share



(i) Public College Share

Notes: Event study plots show coefficients from equation 2 for high schools in our analytic sample, but include year fixed effects instead of controls for linear time trends in the pre-period. The ELA and math pass rates are based on student-level data and all other estimates are from school-level models.

Figure A.5: Intent To Treat Estimates



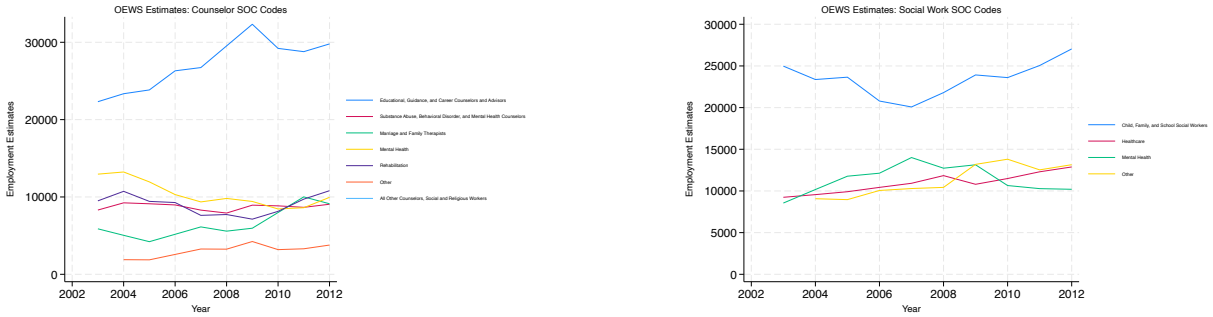
(a) Counselors (b) Counselor Ratio (c) HS Graduation Rate

(d) ELA Pass Rate (e) Math Pass Rate (f) CC Share

(g) CSU Share (h) UC Share (i) Public College Share

Notes: Event study plots show coefficients from equation 2 using linear time trends and holding treatment timing constant. In this model, 2006 is the first year of treatment for all schools that used SSCP funds. The ELA and math pass rates are based on student-level data and all other estimates are from school-level models.

Figure A.6: CA Employment Estimates for Relevant Occupations



(a) Counselor SOC Codes (b) Social Work SOC Codes

Notes: These figures show the number of people employed in each counselor and social work occupation in California by year.

B Sample Notes

Our paper currently omits observations from LA Unified School District (LAUSD). While reviewing a prior draft of our paper, we flagged some potential issues with staffing and expenditures data for LAUSD. We observed that LA experiences an increase in counselor funding from 2009 to 2010 whereas, overall, districts see a decline in counselor funding. Further, the number of school counselors in many LA schools is implausible. No school should have more than 50 (or probably more than 15) counselors, yet high schools in LAUSD have an average of 15 counselors with a standard deviation of 24 counselors as compared to 2.63 (sd 2.57) overall. Similarly, LAUSD high schools have an average student-to-counselor of 220 (sd 250) compared to 467 (sd 370) overall. This means that 41 out of 185 high schools in LAUSD have 50 or more counselors on staff and a student-to-counselor ratio below 50; no schools outside of LAUSD have more than 50 counselors or a ratio below 50 (only 7 non-LAUSD schools have 15 or more counselors).

School finance data is reported at the district level. From 2003-2012, LA spent $166 million on average annually (sd 21) compared to $4.3 million at other districts. LA schools spent $5.4 million on average annually (sd 9) on SSCP compared to $164,000 (sd 450k) at other districts. There do not appear to be data issues with LAUSD for other outcomes, such as high school graduation rates and test taking. Other staffing data similarly seems to be accurate for LAUSD, though there do appear to be some anomalies in instructional spending. For instance, LAUSD schools have 296 teachers on average compared to 280 for other schools. Still, instructional expenditures are way higher for LAUSD ($3.2 billion) compared to other schools ($88 million). Given the centrality of school finance data for our study, we omit LAUSD from our analytic sample.