

## **Online Appendices**

Does Virtual Advising Increase College Enrollment? Evidence from a Random Assignment College Access Field Experiment

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## **APPENDIX A. SUMMARY OF STUDIES OF COLLEGE ACCESS INTERVENTIONS**

This appendix summarizes existing experimental studies of college access programs as background for understanding the findings in the present study.<sup>1</sup> Table A.1 describes studies that meet the following criteria: (1) the intervention addressed one or more aspects of the college and financial aid application process; we exclude studies of programs that provide financial aid/scholarships or change policies related to the college application process; (2) the study had an experimental design; and (3) the study examined the effect of the intervention on college enrollment. We include a few additional studies in which college selectivity, rather than college enrollment, was the outcome of interest.

The first column provides the name of the intervention and citation to the study. The second column describes key aspects of the intervention, the third column provides information about the population of students served, including the counterfactual college enrollment where available, and the timing and method of enrolling students in the study. The last column summarizes the key findings of the study.

We order the studies roughly from most to least similar to V-SOURCE, though interventions have multiple dimensions so alternative orderings are possible. SOURCE (Bos et al. 2012) is the predecessor program to V-SOURCE, so most similar by design. It served a similar population and had a similar structure, except that V-SOURCE was fully virtual, whereas SOURCE included in-person advising. Like SOURCE, Carrell and Sacerdote's (2017) New Hampshire (NH) Mentoring intervention provided in-person advising and focused on the college application process. This intervention assisted students whose counselors referred them to the program because they had expressed interest in attending college but had not taken steps to apply by January of senior year; the program focused on completing applications, covering all necessary fees, and paying a bonus for completing applications in some cases. The low four-year college enrollment rates in the control group of this study indicate that it targeted students who were unlikely to apply to college in the absence of the program. Note that this approach to targeting is only possible in a setting, such as New Hampshire, where public four-year colleges have rolling admissions.

SOURCE increased four-year college enrollment by 3.5 percentage points on average, by 6 percentage points for students whose parents did not attend college, and by 11 percentage points for students whose first language was Spanish. NH Mentoring increased college enrollment by 6 percentage points on average, mostly on the four-year margin, with the effects concentrated entirely among women. Similar to NH Mentoring, LifeAfterHighSchool (Oreopoulos and Ford 2019) focused on getting students to submit applications. That program was offered school-wide in Ontario high schools with low college-transition rates. The program gave students information about college and opportunities to fill out applications during school time with the assistance of

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<sup>1</sup> We do not attempt a meta-analysis or systematic analysis because college access programs differ considerably from one another and from V-SOURCE on many dimensions, and experimental evaluations of college access programs are still relatively uncommon, so it is not yet possible to draw strong conclusions about the aspects of the interventions and the populations they serve that explain differences in effectiveness.

staff; the program also covered application fees. LifeAfterHighSchool increased two-year college enrollment by 4 to 5 percentage points on average.

Avery et. al (2020) report on two interventions that, like V-SOURCE, made use of virtual technologies. In one intervention (the “national study”), treated students received a text message roughly monthly encouraging them to seek help with the college application process, while control group students received messages roughly every two months. Treated students were assigned to a trained advisor who could personalize follow-up texts to responses they received from students, while control group students received automated follow-up texts. The treatment had no effect on SAT taking or FAFSA completion, a small statistically significant *negative* effect on college enrollment overall, and no effect on four-year college enrollment. The second intervention (the “Texas study”) was school-based. Students in treated schools received text messages, ostensibly from their school counselor, encouraging them to complete steps in the college application process. In some cases, these messages were customized based on information about their progress in applying to college or for financial aid. When students responded to these messages, counselors saw these responses and could text back or encourage students to meet with them in person. The intensity of the program therefore depended on how much additional help the counselors provided. Counselors at control group schools had access to the texting platform but used it less. This intervention increased SAT taking (marginally significant), college application and FAFSA completion (by about 5 to 10 percentage points), but not college enrollment. The larger effects on intermediate outcomes suggest in-person support may be important, though as in V-SOURCE, improving completion of key college application steps did not translate to college enrollment.

Bottom Line (Barr and Castleman 2018), Upward Bound (Seftor, Mamun, and Schirm 2009; Nathan 2013), and College Promise (Avery 2013) also provided in-person advising, but were more intensive in some ways than SOURCE, V-SOURCE, and the NH Mentoring intervention. Advise TX (Bettinger and Evans 2019) provided near-peer advising as well, but on a school-wide basis. Bottom Line provided a set of services similar to SOURCE, V-SOURCE and NH Mentoring, but was more intensive and expensive; that program also partnered with particular universities to which students were encouraged to apply and where students could receive additional services through the program if they enrolled. Bottom Line increased college enrollment by 7 percentage points and four-year college enrollment by 10 percentage points (Barr and Castleman 2018). Upward Bound typically enrolls students early in high school and provides instruction, tutoring, and college counseling services, making it more expensive than many other programs. Different analyses of a federally funded study of Upward Bound have come to differing conclusions about its effectiveness depending on how the analyses weight different sites and deal with missing data, which suggests underlying heterogeneity in treatment effects across sites. In the table, we summarize the most recent re-analysis (Nathan 2013), which found a 2.9 percentage point increase in post-secondary enrollment associated with Upward Bound Participation, relatively modest in light of the cost of the program. College Promise was also in person, but less intensive than Upward Bound; it focused on ACT preparation and ACT taking and encouraged students to apply to particular colleges affiliated with the program. The random-assignment study of College Promise suggests that it increased college enrollment, but the sample was small, so the effects were not statistically significant. (The regression

discontinuity estimates are larger, but require comparison of treated and untreated students relatively far from the cutoff.) Consistent with SOURCE and V-SOURCE, Advise TX found statistically insignificant effects of the program overall (when covariates are included), but larger effects for Hispanic students (though Advise TX did not examine heterogeneity based on home language).

The H&R Block study (Bettinger et al. 2012), the Summer Melt studies (Castleman, Page, and Schooley 2014; Castleman and Page 2014), and Nudging at Scale (Bird et al. 2019) examined interventions that were more narrowly focused on FAFSA completion (H&R Block and Nudging at Scale) and summertime tasks, especially FAFSA completion and related financial aid paperwork (Summer Melt). The H&R Block intervention filled out FAFSAs for families as part of the tax filing process through H&R Block and increased college enrollment by 8.1 percentage points for dependents (who are most comparable to the students in V-SOURCE); the additional enrollment was split roughly evenly between two-year and four-year colleges. As in New Hampshire and unlike California, Ohio (the site of the H&R Block study) has four-year colleges with rolling admissions, to which students could still apply in the spring. The Summer Melt interventions targeted college-intending students and reminded them about important summertime tasks via text message. In most of the variants of the Summer Melt interventions, students could access someone to help with those tasks—particularly financial aid related tasks—if they needed it. The effects of Summer Melt interventions range from 0 to about 7 percentage points, depending on the study. In contrast, Bird et al. (2019) did not find effects of a FAFSA encouragement intervention at scale, even for the treatment arm where students could access one-on-one assistance. These studies, together with other research on FAFSA as a barrier (see Dynarski and Scott-Clayton 2006) suggest that the need to complete applications, and the FAFSA in particular, can be a key barrier to college enrollment. The collection of intervention studies, including the current study, suggests that encouraging FAFSA completion may be less effective than providing actual help completing the form.

The Michigan Statewide Light Touch study (Nyman 2019) was extremely low intensity; students in the top half of the ACT distribution were sent a letter directing them to one of two publicly available websites with college information. The intervention, which cost only 50 cents per student, did not increase college enrollment.

The remaining studies listed in the table were quite low-intensity/low-cost and targeted particularly high-achieving students. Expanding College Opportunities (ECO) sent mailers to high-achieving (top 10 percent of the SAT distribution) low-income (based on where they lived) students, encouraging them to apply to more selective colleges and, in some arms, emphasizing the availability of financial aid (Hoxby and Turner 2013). ECO increased the selectivity of colleges students attended; it did not change college enrollment overall, though that was not the goal. BigFuture, implemented by the College Board more recently, included interventions similar to ECO as well as similar interventions that were fully online or included additional components. They also tested these interventions on students who were somewhat lower achieving and somewhat higher income. The evaluation of BigFuture (Gurantz et al. 2019a) did not find evidence that these interventions affected whether or where students enrolled in college. It is not clear what explains the differences in findings between the two studies, but it is possible the type of information these programs gave students is increasingly available generally so there is less

scope for the program to affect enrollment. Preliminary results from two studies from CollegePoint interventions, which provided virtual advising to high achieving students, also find little or no effect on enrollment (Gurantz et al. 2019b; Sullivan, Castleman, and Bettinger 2019).

HAIL also targeted high-achieving students, specifically Michigan students who were likely to be eligible for admission to the University of Michigan (UM) (Dynarski et al. 2018). The program used a mailing to encourage students to apply to UM and guaranteed financial aid if they were admitted (in most cases, students would have qualified for that aid in the absence of the program, so the program primarily simplified the process and reduced uncertainty about financial aid). The program increased enrollment in any college by 3.9 percentage points, increased enrollment in any four-year by 7.4 percentage points, and increased enrollment in selective colleges (mainly UM) by 14.6 percentage points.

To summarize, the most cost-effective interventions target a population that is particularly likely not to attend college in the absence of the program (NH Mentoring) or a particularly complex part of the process for which students would not otherwise have assistance (H&R Block and Summer Melt), and offer hands-on help with those tasks; providing information about how to do the tasks does not appear to be a good substitute. The successful very inexpensive programs with no in-person component (ECO and HAIL, which cost well under \$50 per student) serve quite high achieving students. Such students by definition face few academic barriers to enrollment in four-year colleges, even selective ones, and are likely to get significant financial aid if they apply and are accepted (in the case of HAIL, the intervention guaranteed it), so it is not surprising that lack of information would be the key barrier for some of these students. Still, information interventions do not always improve outcomes, even for this population (Gurantz et al. 2019a).

As we discuss in the main paper, we believe that the lack of hands-on, in-person help probably limited the effectiveness of V-SOURCE relative to SOURCE and some of the other interventions described here. In addition, some students in V-SOURCE did not have academic records strong enough to gain admission to a range of four-year colleges. Finally, though it is difficult to assess, the increasing availability of help and especially information on the internet and elsewhere about how to apply to college, as well as the simplification of the FAFSA for low-income students, may reduce the measured effectiveness of any particular college access program over time.

**Table A.1. Studies of College Access Programs**

Program & Cite	Program Characteristics	Target Population and Setting for Study	Evaluation Findings
<p><b>SOURCE</b></p> <p>Bos et al. (2012)</p>	<p><b>Summary:</b> Near-peer 15 month college counseling intervention; in-person and by phone</p> <p><b>Information:</b> How to apply for college/financial aid; select colleges; how to write essays; returns to college; net costs; how to make up courses to improve application; reminders about deadlines</p> <p><b>Encouragement:</b> Near-peer counselors provided encouragement and inspiration</p> <p><b>Help:</b> Could provide in-person help with applications; often by phone in practice</p> <p><b>Academic Remediation/Test prep:</b> Suggestions for course selection in senior year; some SAT prep, but did not have appropriate SAT prep materials</p> <p><b>Incentives/Rewards:</b> None</p> <p><b>Intensity:</b> Moderate; 15 months of assistance but little academic remediation</p> <p><b>Cost:</b> \$1,000 per participant (2006\$)</p>	<p><b>Academic achievement:</b> On track to be eligible for admission to public four-year college in California</p> <p><b>Demographics/Income:</b> Targeting low-income and first-gen college-going; offered to all of L.A. Unified School District</p> <p><b>Timing:</b> Late Junior year through high school graduation</p> <p><b>Geography:</b> Los Angeles, CA</p> <p><b>Recruitment method:</b> Application mailed to all LAUSD juniors meeting academic eligibility requirements</p> <p><b>Participation incentives:</b> Free movie ticket for returning application</p> <p><b>Counterfactual college enrollment:</b> 75% enrolled in any college; 40% and 52% in any two-year and any four-year college</p>	<p><b>Average effects on college enrollment:</b> 0.8 pp increase (not significant) in any enrollment during year after expected HS graduation</p> <p><b>Two-year &amp; Four-year:</b> Small decline in two-year college enrollment (0.9 pp, not significant) and increase in four-year enrollment (3.5 pp, p=.092)</p> <p><b>Subgroups:</b> Larger effects on four-year enrollment for students whose first language was Spanish (10.6 pp, p=0.001) and whose parents did not attend college (6.1 pp, p=.009)</p> <p><b>Other:</b> Significant effects on FAFSA submission overall and for sub-groups; fairly high level of help in control group</p>
<p><b>New Hampshire Interventions</b></p> <p>Carrell and Sacerdote (2017)</p>	<p><b>Summary:</b> Mentoring intervention: near-peer counselors helped students complete college applications and financial aid forms; paid SAT registration/application fees; Transcript intervention: colleges encouraged students to apply based on their transcripts</p> <p><b>Information:</b> Mentoring intervention provides information about college application process, financial aid; Transcript intervention provides information about likelihood of acceptance to a particular college</p> <p><b>Encouragement:</b> Encouraged participants to get applications done (Mentoring intervention); Transcript intervention encouraged students to apply via letter</p> <p><b>Academic Remediation/Test prep:</b> None</p> <p><b>Help:</b> Helping students “get the job done” and complete applications was the main focus of Mentoring intervention; no help in Transcript intervention.</p> <p><b>Incentives/Rewards:</b> \$100 for completing applications (in most versions of Mentoring intervention). Paid SAT registration and college application fees (share who would have qualified for waivers otherwise is not reported).</p> <p><b>Intensity:</b> Moderate</p> <p><b>Cost:</b> \$300 per participant (circa 2014)</p>	<p><b>Academic achievement:</b> Moderate; average reading test scores 0.43 sd below mean; 21% scored above 75<sup>th</sup> percentile</p> <p><b>Demographics/Income:</b> Moderate/low income; 28% free/reduced-price lunch (FRPL) eligible</p> <p><b>Timing:</b> Students recruited in January of senior year; note many NH public four-year colleges have rolling admissions</p> <p><b>Geography:</b> New Hampshire high schools</p> <p><b>Recruitment method:</b> Asked guidance counselors to nominate students who expressed interest in college but had not made progress in applying</p> <p><b>Participation incentives:</b> None at start; \$75 gift card for survey completion</p> <p><b>Counterfactual college enrollment:</b> 44% any college; 17% four-year college</p>	<p><b>Average effects on college enrollment:</b> Mentoring: ITT 6.0 pp (p&lt;0.01), IV 13.3 pp (p&lt;0.01); Transcript: no effect</p> <p><b>Two-year &amp; Four-year:</b> Effects are almost entirely for four-year college enrollment</p> <p><b>Subgroups:</b> Much larger effects for women (ITT 14.6 pp, IV 30 pp); no effects for men. No effect of transcript treatment for any group</p> <p><b>Other:</b> Marginal students persist similar to control students; effects are concentrated among those who did not have a parent help with college applications</p>

Program & Cite	Program Characteristics	Target Population and Setting for Study	Evaluation Findings
<p><b>Digital Messaging National Study</b></p> <p>Avery et al. (2020)</p> <p>This paper reports on two different interventions</p>	<p><b>Summary:</b> Students received text messages offering support from an advisor; advisor supported students via text message</p> <p><b>Information:</b> The program provided information via text message; advisors were trained by uAspire</p> <p><b>Encouragement:</b> Not specifically reported</p> <p><b>Academic Remediation/Test prep:</b> None</p> <p><b>Help:</b> Advisors offered help via text message</p> <p><b>Incentives/Rewards:</b> None</p> <p><b>Intensity:</b> Low</p> <p><b>Cost:</b> Not reported</p>	<p><b>Academic achievement:</b> Mixed</p> <p><b>Demographics/Income:</b> Targeted schools with high free-lunch participation rates</p> <p><b>Timing:</b> Late junior year</p> <p><b>Geography:</b> National (15 states)</p> <p><b>Recruitment method:</b> Sample of schools identified using administrative data; all students in selected schools were treated</p> <p><b>Participation incentives:</b> None</p> <p><b>Counterfactual college enrollment:</b> 61 percent attended any college</p>	<p><b>Average effects on college enrollment:</b> Small, statistically significant negative effect on any enrollment (-1.4 pp)</p> <p><b>Two-year &amp; Four-year:</b> Small, negative, insignificant effects on both margins</p> <p><b>Subgroups:</b> None reported</p>
<p><b>Digital Messaging Texas Study</b></p> <p>Avery et al. (2020)</p> <p>This paper reports on two different interventions</p>	<p><b>Summary:</b> Students received text messages directing students to access additional support through their in-school counselors; counselors could use the platform to provide further support if they wanted</p> <p><b>Information:</b> The program provided information via text message; counselors likely also provided information</p> <p><b>Encouragement:</b> Not specifically reported, but counselors likely provided encouragement in some cases</p> <p><b>Academic Remediation/Test prep:</b> High school counselors may have offered this help or directed students to other resources</p> <p><b>Help:</b> High school counselors offered some help</p> <p><b>Incentives/Rewards:</b> None</p> <p><b>Intensity:</b> Medium</p> <p><b>Cost:</b> Not reported</p>	<p><b>Academic achievement:</b> Mixed</p> <p><b>Demographics/Income:</b> Half socioeconomically disadvantaged; 56 percent Hispanic, 31 percent white, 14 percent Black/African American</p> <p><b>Timing:</b> Late junior year</p> <p><b>Geography:</b> Texas</p> <p><b>Recruitment method:</b> Sample of schools identified using administrative data; all students in selected schools were treated</p> <p><b>Participation incentives:</b> None</p> <p><b>Counterfactual college enrollment:</b> 51 percent attended any college.</p>	<p><b>Average effects on college enrollment:</b> Small, statistically insignificant effect on any enrollment (1.7 pp) overall</p> <p><b>Two-year &amp; Four-year:</b> Small, positive insignificant effects on both margins</p> <p><b>Subgroups:</b> Largest effects on intermediate outcomes for non-FRL, low-achieving students; 4.7 pp effect on college-going is significant at 10 percent level only</p> <p><b>Other:</b> Moderate effects (5-10 pp) on intermediate outcomes of SAT taking, college application, and FAFSA submission</p>

Program & Cite	Program Characteristics	Target Population and Setting for Study	Evaluation Findings
<p><b>Bottom Line</b></p> <p>Barr and Castleman (2018)</p>	<p><b>Summary:</b> Intensive in-person, professional college counseling; students who enrolled in target universities also received counseling while in college</p> <p><b>Information:</b> Counseling focused on developing an application portfolio and understanding financial aid offers</p> <p><b>Encouragement:</b> Not stated, but presumably advisors encouraged students to apply broadly, including reach schools</p> <p><b>Academic Remediation/Test prep:</b> None</p> <p><b>Help:</b> Comprehensive help with all aspects of the application process</p> <p><b>Incentives/Rewards:</b> None</p> <p><b>Intensity:</b> High</p> <p><b>Cost:</b> \$4,000 per student</p>	<p><b>Academic achievement:</b> Moderate/high; participating students had an average GPA of 3.26</p> <p><b>Demographics/Income:</b> Low-income (less than 200 percent poverty), 81 percent first generation, one-third Black/African American, one-third Hispanic</p> <p><b>Timing:</b> 15 months, late Junior year through college enrollment; in-college intervention administered through 6 years after high school graduation</p> <p><b>Geography:</b> Boston, Worcester, New York</p> <p><b>Recruitment method:</b> Students can apply if they have GPA &gt;2.5 and family income &lt;200 FPL; application process not specified, but estimate program serves 60-70 percent of eligible in Boston area; randomized wait list</p> <p><b>Participation incentives:</b> None</p> <p><b>Counterfactual college enrollment:</b> Any college 83 percent; 70 percent enrolled in four-year college</p>	<p><b>Average effects on college enrollment:</b> 7.0 percentage points</p> <p><b>Two-year &amp; Four-year:</b> 10.3 percentage point effect on four-year enrollment; -3.4 percentage point effect on two-year enrollment</p> <p><b>Subgroups:</b> larger effects for students with lower predicted college enrollment</p> <p><b>Other:</b> Treated students are more likely to enroll in the targeted colleges and enroll in higher-quality colleges according to several measures</p>
<p><b>Upward Bound RCT</b></p> <p>Seftor, Mamun, &amp; Schirm (2009)</p> <p>RCT Reanalysis Nathan (2013)</p>	<p><b>Summary:</b> Part of the Federally-funded TRIO programs; multi-year, intensive college preparation program, including academic support and enrichment, academic remediation, test prep, summer sessions, support for application process. Run by local colleges; specifics vary by site</p> <p><b>Information:</b> Early information about benefits of college and college application process</p> <p><b>Encouragement:</b> Students are encouraged to prepare for college</p> <p><b>Academic Remediation/Test prep:</b> This is a major part of the program</p> <p><b>Help:</b> Unclear how much help students have with the college application process itself</p> <p><b>Incentives/Rewards:</b> None</p> <p><b>Intensity:</b> High</p> <p><b>Cost:</b> over \$5,000 per student per year</p>	<p><b>Note:</b> There have been several evaluations of the same experiment, and in some cases they have come to different conclusions</p> <p><b>Academic achievement:</b> Moderate/mixed; about 46 percent had 9<sup>th</sup> grade GPA above 2.5.</p> <p><b>Demographics/Income:</b> Low income, first gen college, or both</p> <p><b>Timing:</b> Starts as early as 9<sup>th</sup> grade, students participate up to 4 years</p> <p><b>Geography:</b> National</p> <p><b>Recruitment method:</b> Random assignment in oversubscribed programs. Some evidence that application standards were relaxed to ensure enough participation</p> <p><b>Participation incentives:</b> None</p> <p><b>Counterfactual college enrollment:</b> 79 percent (per MPR Horizons Study)</p>	<p><b>Average effects on college enrollment:</b> Estimates depend on the analysis. Original MPR Horizons study finds no significant effect; Nathan re-analysis finds 2.9 percentage point increase in any post-secondary enrollment (significant at the 10 percent level)</p> <p><b>Two-year &amp; Four-year:</b> Effects on two-year and four-year enrollment are larger than effects on any enrollment. Suggest some shifting from certificate programs to 2- or 4-year college</p> <p><b>Subgroups:</b> Nathan re-analysis finds that students who would not normally be eligible for UB benefited more; those with a higher GPA also benefited more</p> <p><b>Other:</b> Larger effects on post-secondary completion than on enrollment</p>



Program & Cite	Program Characteristics	Target Population and Setting for Study	Evaluation Findings
<p><b>College Promise RCT and RD</b></p> <p>Avery (2013)</p>	<p><b>Summary:</b> Two-year after-school program (junior and senior years) focusing on ACT preparation and help with college applications, financial aid, college choice, and transition to college</p> <p><b>Information:</b> Information about college application process and benefits of applying to more selective colleges</p> <p><b>Encouragement:</b> Encourages selective applications</p> <p><b>Academic Remediation/Test prep:</b> ACT test prep; no other academic remediation</p> <p><b>Help:</b> Hands-on help with test prep and applications</p> <p><b>Incentives/Rewards:</b> N/A</p> <p><b>Intensity:</b> High. Participants receive 320 hours of direct service over 2 years</p> <p><b>Cost:</b> not reported, likely expensive</p>	<p><b>Academic achievement:</b> GPA 2.0 or above</p> <p><b>Demographics/Income:</b> Low-income, mostly URM (about 60% Hmong), mostly first-gen college; both RD and RCT targeted marginally eligible students</p> <p><b>Timing:</b> apply sophomore year, participate junior and senior year</p> <p><b>Geography:</b> Minneapolis/St Paul</p> <p><b>Recruitment method:</b> Through high schools; details unknown</p> <p><b>Participation incentives:</b> none</p> <p><b>Counterfactual college enrollment:</b> 64% enrolled in any college; 30% enrolled in 2-year college</p>	<p><b>Average effects on college enrollment:</b> RD estimates between 19 to 21 pp; IV estimates: 6.1 pp (not significant) overall</p> <p><b>Two-year &amp; Four-year:</b> RD estimates indicate increase is mostly for four-year enrollment. IV estimates suggest 16 pp increase in 4-year enrollment, similar effects for selective college enrollment</p> <p><b>Subgroups:</b> sample too small for subgroup analysis</p> <p><b>Other:</b> Spring enrollment estimates somewhat smaller and not always statistically significant; sample size is small</p>
<p><b>Advise TX</b></p> <p>Bettinger and Evans (2019)</p>	<p><b>Summary:</b> School-wide, in-school, near-peer advisor provides assistance with college application process; part of College Advising Corp (CAC)</p> <p><b>Information:</b> Advisor provides comprehensive information about college application process and choosing a college</p> <p><b>Encouragement:</b> Advisors provide encouragement</p> <p><b>Academic Remediation/Test prep:</b> Advisors encourage text prep but do not provide instruction or academic remediation</p> <p><b>Help:</b> Advisors can assist with college applications</p> <p><b>Incentives/Rewards:</b> None</p> <p><b>Intensity:</b> Moderate. In-person help, but moderate/high counselor/student ratio depending on school size</p> <p><b>Cost:</b> About \$59,000 per school. Average size of senior class was 462, so if the program only served seniors (it focused on seniors but served others as well), cost averaged \$128 per student</p>	<p><b>Academic achievement:</b> Mixed; whole school</p> <p><b>Demographics/Income:</b> Moderate/low income (about half qualify for FRPL); mostly URM (about half Hispanic, 20 percent Black/African American)</p> <p><b>Timing:</b> Mostly focused on senior year, though advisors can help underclassman</p> <p><b>Geography:</b> Throughout TX</p> <p><b>Recruitment method:</b> School-level random assignment. Schools were screened for socioeconomic disadvantage, offered opportunity to apply; some additional screening by Advise TX staff; marginal schools were randomly assigned</p> <p><b>Participation incentives:</b> None</p> <p><b>Counterfactual college enrollment:</b> 56 percent enrolled in any college; 24 percent four-year college</p>	<p><b>Average effects on college enrollment:</b> 1.1 percentage point increase in any college enrollment (statistically insignificant); three-year pooled effect of 0</p> <p><b>Two-year &amp; Four-year:</b> Increases in enrollment observed in first year for two-year college (2.4 pp); no effects on four-year enrollment</p> <p><b>Subgroups:</b> Larger effects on two-year college enrollment in first year for low-income (2.0 pp) and Hispanic (3.4 pp) students; marginally significant in some cases</p> <p><b>Other:</b> Effects decline over the three years of the study; authors suggest crowd-out of in-school resources and availability of other programming over time may explain this pattern</p>

Program & Cite	Program Characteristics	Target Population and Setting for Study	Evaluation Findings
<p><b>LifeAfterHigh School</b> Oreopoulos and Ford (2019)</p>	<p><b>Summary:</b> School-wide, in-school program consisting mainly of three supervised sessions in a computer lab using program website; sessions focused on encouraging students to consider college/providing information, filling out applications, and filling out financial aid forms  <b>Information:</b> First session provided information about colleges, how to pay for college, how to apply, and where to look for more information  <b>Encouragement:</b> The curriculum encouraged students to keep their options open  <b>Academic Remediation/Test prep:</b> None  <b>Help:</b> Program and school staff helped with college or financial applications during the sessions; school counselors were encouraged to provide individual help afterward to students who did not attend a workshop or did not finish an application during the workshop  <b>Incentives/Rewards:</b> Program paid application fees  <b>Intensity:</b> Low. In-person help, but only three sessions  <b>Cost:</b> \$200 per student</p>	<p><b>Academic achievement:</b> Mixed; whole school  <b>Demographics/Income:</b> The program served disadvantaged Ontario schools  <b>Timing:</b> Senior year during application process  <b>Geography:</b> Ontario Canada  <b>Recruitment method:</b> School-level random assignment. Schools were screened for low postsecondary-transition rates and being within commuting distance to a college  <b>Participation incentives:</b> None  <b>Counterfactual college enrollment:</b> 23 percent enrolled in a two-year college; 21% percent enrolled in a four-year college (Grade 12 students with &gt;=21 credits)</p>	<p><b>Average effects on college enrollment:</b> 4.4 percentage point increase in any postsecondary enrollment  <b>Two-year &amp; Four-year:</b> Effects are only statistically significant for “college” (two-year, often career-oriented) rather than “university” (four-year) enrollment  <b>Subgroups:</b> Larger effects for students not on track for “university,” consistent with larger effects on college compared to University; otherwise similar effects across groups</p>
<p><b>H&amp;R Block FAFSA</b> Bettinger et al. (2012)</p>	<p><b>Summary:</b> In Treatment 1, tax professionals helped fill out FAFSA at H&amp;R Block as part of tax preparation; in Treatment 2, tax professionals offered written, personalized aid estimates and encouraged FAFSA completion  <b>Information:</b> Both treatments provided information about costs at nearby colleges and implicitly provided information about the role of FAFSA in claiming financial aid  <b>Encouragement:</b> Minimal; tax professionals focused on FAFSA only  <b>Academic Remediation/Test prep:</b> None  <b>Help:</b> In treatment 1, completed and submitted FAFSA where possible; otherwise sent partially complete form to home address; In treatment 2, there was no help  <b>Incentives/Rewards:</b> None  <b>Intensity:</b> Low. Filled out FAFSA only  <b>Cost:</b> \$88 per participant (circa 2010\$)</p>	<p><b>Academic achievement:</b> No screen  <b>Demographics/Income:</b> AGI less than \$45,000; focus on two groups: (1) families with a 17-year-old dependent and (2) independent adults age 24-30 with HS degree and no prior college experience  <b>Timing:</b> Tax filing time (Spring); note that Ohio has one rolling admission selective four-year college where seniors could still apply  <b>Geography:</b> Ohio and North Carolina  <b>Recruitment method:</b> Screen clients in tax preparers office based on family structure and income  <b>Participation incentives:</b> \$20  <b>Counterfactual college enrollment:</b> For dependents, 34% any college (16% four-year, 18% two-year); for independent adults, 9.5% (3.1% four-year, 6.2% two-year)</p>	<p><b>Average effects on college enrollment:</b> 8.1 pp (p&lt;.05) increase and 1.5 pp (p&lt;.05) increase in any college enrollment for dependents and independent adults, respectively  <b>Two-year &amp; Four-year:</b> Dependents: 3.7 pp and 4.7 pp increase for four- and two-year college, respectively. For independent adults, point estimates suggest mostly two-year, but imprecise  <b>Subgroups:</b> N/A  <b>Other:</b> Marginal students persist to second year at same rate as average student</p>

Program & Cite	Program Characteristics	Target Population and Setting for Study	Evaluation Findings
<p><b>Summer Melt Interventions</b></p> <p>Castleman, Page, and Schooley (2014) Castleman and Page (2014)</p> <p>Note we exclude Castleman, Arnold, and Wartman (2012) since it has a small sample (N=162)</p>	<p><b>Summary:</b> Series of interventions focused on getting students who intend to enroll in college at the end of senior year to actually enroll in the fall; most versions of the intervention use text messaging to direct students to additional information and/or counselors who can help them with summertime paperwork in person or by phone</p> <p><b>Information:</b> Information about summertime tasks and deadlines</p> <p><b>Encouragement:</b> Encouragement to complete the process and enroll in college</p> <p><b>Academic Remediation/Test prep:</b> None</p> <p><b>Help:</b> Some versions include an option to get hand-on help with financial aid forms and other tasks; some versions offer less-intensive help by phone</p> <p><b>Incentives/Rewards:</b> None</p> <p><b>Intensity:</b> Low/moderate</p> <p><b>Cost:</b> Text-only: \$7 per student; versions with advisors or peer mentors \$80-200</p>	<p><b>Academic achievement:</b> Broad; varies depending on study</p> <p><b>Demographics/Income:</b> Broad; some versions more focused on low-income students</p> <p><b>Timing:</b> Summer before on-time college enrollment</p> <p><b>Geography:</b> Sites in Massachusetts; Fulton County, GA; Dallas, TX</p> <p><b>Recruitment method:</b> Some versions use sample of students who participated in counseling programs prior to summer; Dallas and Fulton studies draw sample based on administrative data</p> <p><b>Participation incentives:</b> None</p> <p><b>Counterfactual college enrollment:</b> 60 to 80% overall</p>	<p><b>Average effects on college enrollment:</b> Between null and 7 percentage points, depending on sample</p> <p><b>Two-year &amp; Four-year:</b> Not always specified separately; in some studies, effects appear to be larger for two-year than four-year enrollment</p> <p><b>Subgroups:</b> Effects tend to be larger for low-income students and especially those who have not already filled out the FAFSA prior to treatment</p> <p><b>Other:</b> Studies where treatment includes significant financial aid help tend to have larger effects</p>
<p><b>MI Statewide Light Touch</b></p> <p>Hyman (2019)</p>	<p><b>Summary:</b> Sent letter from Michigan Department of Education encouraging students to access one of two existing websites providing information about college; varied wording of letter in different treatment arms</p> <p><b>Information:</b> Students were directed to existing public websites</p> <p><b>Encouragement:</b> Encouraged students to apply; mentioned the recommendation was based on ACT scores</p> <p><b>Academic Remediation/Test prep:</b> None</p> <p><b>Help:</b> None</p> <p><b>Incentives/Rewards:</b> None</p> <p><b>Intensity:</b> Very low</p> <p><b>Cost:</b> 50 cents per student</p>	<p><b>Academic achievement:</b> High-achieving. Above median ACT score. Average grade 11 GPA of 3.20.</p> <p><b>Demographics/Income:</b> Not selected for demographics; sample is 74 percent white and 43 percent economically disadvantaged</p> <p><b>Timing:</b> Fall of senior year</p> <p><b>Geography:</b> Michigan</p> <p><b>Recruitment method:</b> Sample identified using administrative data; students did not have to sign up</p> <p><b>Participation incentives:</b> None</p> <p><b>Counterfactual college enrollment:</b> 84 percent enrolled in any college, 68 percent in four-year</p>	<p><b>Average effects on college enrollment:</b> Precise null</p> <p><b>Two-year &amp; Four-year:</b> No effect on any type of enrollment on average</p> <p><b>Subgroups:</b> Effects on four-year enrollment appear larger for economically disadvantaged, but are still small (1.7 percentage points)</p> <p><b>Other:</b> Results on take up suggest all students are concerned about affordability and that economically disadvantaged and higher achieving students may have more unmet need for information</p>

Program & Cite	Program Characteristics	Target Population and Setting for Study	Evaluation Findings
<p><b>Expanding College Opportunities (ECO)</b> Hoxby and Turner (2013)</p>	<p><b>Summary:</b> Mail-based information intervention targeted to high-achieving, low-income students  <b>Information:</b> Main/comprehensive intervention included information about application strategies, deadlines, college graduation rates, financial aid and net costs as selected colleges, fee waiver instructions  <b>Encouragement:</b> Information mostly designed to encourage seeking of additional information, particularly about selective colleges  <b>Academic Remediation/Test prep:</b> None  <b>Help:</b> Fee waivers and blank Common Application  <b>Incentives/Rewards:</b> None  <b>Intensity:</b> Low  <b>Cost:</b> \$6 per participant</p>	<p><b>Academic achievement:</b> High; participating students were in the top 10% of the SAT/ACT distribution  <b>Demographics/Income:</b> Bottom third of the income distribution for families with a 12<sup>th</sup> grader (and not attending a feeder school)  <b>Timing:</b> Junior/senior year  <b>Geography:</b> National; focused on schools where not many students go to selective colleges  <b>Recruitment method:</b> Uses administrative data from College Board and ACT to identify participants in the study; students did not have to opt in  <b>Participation incentives:</b> Payments for survey completion.  <b>Counterfactual college enrollment:</b> Does not look at any enrollment as an outcome; almost all of the control group attended at least some college</p>	<p><b>Average effects on college enrollment:</b> not reported  <b>Two-year &amp; Four-year:</b> not reported  <b>Subgroups:</b> Larger effects for targeted students than for higher income students or those attending feeder schools  <b>Other:</b> Goal was to increase the selectivity of where students applied and enrolled; treatment was effective at achieving this according to several measures; comprehensive program was most effective; intervention focused on information about net costs was more effective before information on net costs was more widely available online</p>
<p><b>College Board BigFuture</b> Gurantz et al. (2019a)</p>	<p><b>Summary:</b> Main treatment is mailers with information about applying to college, including “starter list”; some students also received information by text message or email, a small dose of virtual advising, and/or free score sends  <b>Information:</b> Information about the application process, how to construct an application portfolio, starter list of colleges; encouraged to go to BigFuture website for more information  <b>Encouragement:</b> Materials provided some encouragement, but mostly was not personalized  <b>Academic Remediation/Test prep:</b> None  <b>Help:</b> None  <b>Incentives/Rewards:</b> None; additional free SAT score sends in some treatment arms  <b>Intensity:</b> Low  <b>Cost:</b> Cost not reported, but inexpensive</p>	<p><b>Academic achievement:</b> “On-Track” for enrollment in a four-year college (top 50 percent of SAT/PSAT scores) and “High-Achieving” (top 10 percent)  <b>Demographics/Income:</b> Low-income (incomes below \$40,000 or \$58,000, depending on cohort) and moderate income (income below \$77,000)  <b>Timing:</b> Summer before and during 12<sup>th</sup> grade  <b>Geography:</b> National  <b>Recruitment method:</b> Sample selected based on SAT/PSAT scores and other information; students did not have to sign up  <b>Participation incentives:</b> None  <b>Counterfactual college enrollment:</b> 65 percent enrolled in four-year college, 12 percent in two-year college</p>	<p><b>Average effects on college enrollment:</b> Precise zero.  <b>Two-year &amp; Four-year:</b> No effects on either margin  <b>Subgroups:</b> No effects on enrollment for any sub-groups  <b>Other:</b> Some effects on SAT score-sending (particularly for intervention that made sending more scores free) and possibly college quality for African Americans and Hispanics</p>

Program & Cite	Program Characteristics	Target Population and Setting for Study	Evaluation Findings
<p><b>HAIL</b></p> <p>Dynarski et al. (2018)</p>	<p><b>Summary:</b> Collaboration with University of Michigan admissions to recruit high-achieving low-income students to UM; mailer informed students about financial aid, offered a full four-year scholarship, let students know they could succeed at an elite university, and encouraged them to apply to UM; information also emailed to parents and high school principals.</p> <p><b>Information:</b> Information about financial aid and the University of Michigan.</p> <p><b>Encouragement:</b> Encouraged students to believe they could succeed at an elite university</p> <p><b>Academic Remediation/Test prep:</b> None</p> <p><b>Help:</b> None, but students were offered a scholarship and told they didn't have to fill out FAFSA or CSS, though they were encouraged to do so to get the most aid</p> <p><b>Incentives/Rewards:</b> Guaranteed four-year scholarship valued at \$60,000, though most students would have qualified for similar aid</p> <p><b>Intensity:</b> Low</p> <p><b>Cost:</b> Mailer was \$10 per student; some addition cost in extra financial aid due to mis-targeting (not yet reported)</p>	<p><b>Academic achievement:</b> High-achieving: average GPA of 3.8 and average SAT score of 1257</p> <p><b>Demographics/Income:</b> Low-income: 70 percent qualified for free lunch and 30 percent for reduced-price lunch; mostly white and Asian (84 percent)</p> <p><b>Timing:</b> Packet was sent in September of the senior year in high school</p> <p><b>Geography:</b> Michigan</p> <p><b>Recruitment method:</b> Random assignment at the school-level; student eligibility determined using administrative data</p> <p><b>Participation incentives:</b> None</p> <p><b>Counterfactual college enrollment:</b> Main margin of interest is enrollment in UM/selective college. Control mean for UM enrollment was 10.7 percent; Control means for any college and four-year college were 79.1 percent and 67.5 percent, respectively</p>	<p><b>Average effects on college enrollment:</b> 3.9 pp (marginally significant) effect on any enrollment</p> <p><b>Two-year &amp; Four-year:</b> 7.4 percentage point increase in four-year enrollment, 3.5 percentage point reduction in two-year enrollment. Large effects on enrollment in selective colleges (entirely UM): 14.6 percentage point increase</p> <p><b>Subgroups:</b> Subgroup estimates are for UM enrollment; larger effects for rural areas, females, whites and Asians, free (rather than reduced price) lunch eligible</p> <p><b>Other:</b> Improvements in four-year college persistence to second year for first cohort</p>
<p><b>Nudging at Scale</b></p> <p>Bird et al. (2019)</p>	<p><b>Summary:</b> Two experiments focused on encouraging students to complete FAFSA via email, text message, and regular mail; some students received an offer of one-on-one advising</p> <p><b>Information:</b> Advisors could provide additional info</p> <p><b>Encouragement:</b> Encouraged students to complete FAFSA</p> <p><b>Academic Remediation/Test prep:</b> None</p> <p><b>Help:</b> None</p> <p><b>Incentives/Rewards:</b> None</p> <p><b>Intensity:</b> Low</p> <p><b>Cost:</b> Not reported</p>	<p><b>Academic achievement:</b> Common App sample is relatively high achieving (average SAT of 1104); Large State sample more mixed</p> <p><b>Demographics/Income:</b> Low and moderate income</p> <p><b>Timing:</b> During senior year</p> <p><b>Geography:</b> National and one large state</p> <p><b>Recruitment method:</b> Sample identified using administrative data; students did not have to sign up</p> <p><b>Participation incentives:</b> None</p> <p><b>Counterfactual college enrollment:</b> 82 (49) percent enrolled in any college for Common App (Large State) sample; 73 (29) percent in four-year</p>	<p><b>Average effects on college enrollment:</b> Precise null</p> <p><b>Two-year &amp; Four-year:</b> No effect on any type of enrollment on average</p> <p><b>Subgroups:</b> No effects for any subgroup or treatment arm</p> <p><b>Other:</b> No effect on filing FAFSA where it can be measured in Large State, even though control mean is only 43.6 percent. FAFSA filing not observed in Common App sample</p>

Program & Cite	Program Characteristics	Target Population and Setting for Study	Evaluation Findings
<p><b>CollegePoint Studies</b></p> <p>A. Gurantz et al. (2019b)</p> <p>B. Sullivan, Castleman, and Bettinger (2019)</p>	<p><b>Note:</b> These are separate studies of similar interventions, so we summarize them together here</p> <p><b>Summary:</b> Students offered access to a virtual advisor through CollegePoint; advising focused on getting students to apply to specific CollegePoint colleges</p> <p><b>Information:</b> Comprehensive information about applying to college, with particular emphasis on high-graduation rate CollegePoint colleges</p> <p><b>Encouragement:</b> Not specifically reported</p> <p><b>Academic Remediation/Test prep:</b> None</p> <p><b>Help:</b> Not specifically reported</p> <p><b>Incentives/Rewards:</b> None</p> <p><b>Intensity:</b> Medium</p> <p><b>Cost:</b> Not reported</p>	<p><b>Academic achievement:</b> High-achieving; average SAT/ACT score around 95<sup>th</sup> percentile</p> <p><b>Demographics/Income:</b> Low and moderate income</p> <p><b>Timing:</b> Late junior or early senior year</p> <p><b>Geography:</b> National</p> <p><b>Recruitment method:</b> Sample identified using administrative data; students did not have to sign up</p> <p><b>Participation incentives:</b> None</p> <p><b>Counterfactual college enrollment:</b> 87 percent attended some college in both studies, mostly four-year (83 percent in study A, not reported in study B).</p>	<p><b>Average effects on college enrollment:</b> No effect on overall enrollment</p> <p><b>Two-year &amp; Four-year:</b> No effect on two-year or four-year margin. Study A shows increase in enrollment in CollegePoint colleges of 2.7 percentage points; Study B shows marginally significant increase of 1.5 percentage points in enrollment in selective colleges</p> <p><b>Subgroups:</b> Study A finds similar effects for low and middle income students</p>

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## APPENDIX B. MEASURES OF INFORMATION AND SUPPORT

This appendix describes how we constructed the measures of how much information and support students reported having during the college application process (Table 5 of the paper). We constructed three measures based on questions asked of both treatment and control students on the Follow-up Survey. For each of the measures, we standardized each item and averaged across all the items for that domain. We then re-standardized the index to have a mean of 0 and a standard deviation of 1 in the control group.

The “Sought Information” construct is based on responses to the following series of 14 questions. The answer options were categorical, and we assigned numerical values to them (in parentheses): Never (0), Once or twice (1.5), Three or four times (3.5), and Five or more times (5).

“Including the summer before your senior year and your senior year, about how often did you do the following things?”

1. Visited a college campus
2. Attended a college fair
3. Talked with the counselor at my school about financial aid or applying to college
4. Talked to my teacher(s) about financial aid or applying to college
5. Talked with someone from a college access program or organization about financial aid or applying to college
6. Visited websites to learn about financial aid or applying to college
7. Read books or other printed information about financial aid or applying to college
8. Visited specific colleges' websites
9. Read brochures or booklets about specific colleges
10. Talked about a specific college with someone who attends (or attended) that college
11. Read printed, emailed, or text messaged information about college or financial aid provided by a college access program or organization
12. Talked with someone my family paid to help me with the college application process
13. Talked with someone in my family about whether or where I should go to college
14. Talked with someone in my family about how much college costs or how I would pay for college

The “Had Information” construct is based on responses to the following 21 questions (numeric values assigned to categorical responses in parentheses).

1. In general, how well-informed did you feel throughout the college application process and as you made your decisions about college? Very well-informed (5), Well-informed (4), Somewhat well-informed (3), A little well-informed (2), Not well-informed at all (1)
2. Thinking about both the summer before your senior year and your senior year, how true were the following things about you? Very true (5), Mostly true (4), Somewhat true (3), A little true (2), Not at all true (1)
  - a. I knew when SAT deadlines were coming up
  - b. I knew when ACT deadlines were coming up
  - c. I knew when college application deadlines were coming up

- d. I knew how to find and fill out college applications
  - e. I knew when financial aid application deadlines were coming up
  - f. I knew how to find and fill out financial aid applications
3. Thinking about both the summer before your senior year and your senior year, how true were the following things about you? It was easy for me to get information about: Very true (5), Mostly true (4), Somewhat true (3), A little true (2), Not at all true (1)
- a. How to improve my SAT score
  - b. How to use a calculator for the SAT
  - c. How to write a better SAT essay
  - d. Which questions to skip on the SAT
  - e. How to improve my GPA for college applications
  - f. Non-academic ways to increase my chances of getting into a good college
  - g. The colleges I would probably be able to get into
  - h. Which colleges I should apply to
  - i. How to find and fill out college applications
  - j. How to write a good application essay
  - k. How to find and fill out financial aid forms
  - l. The scholarships I should apply for
  - m. What my financial aid offers meant
  - n. How to choose which college to attend

The “Had Support” construct is based on responses to the following 16 questions (numeric values assigned to categorical responses in parentheses).

Thinking about both the summer before your senior year and your senior year, how true were the following things about you? I had someone who: Very true (5), Mostly true (4), Somewhat true (3), A little true (2), Not at all true (1). On this set of questions, students had the option of answering “I did not need help with this.” If students selected that response, we excluded that item from the index for that student.

1. Kept me motivated to do the work needed to apply to college
2. Helped me sign up for the SAT
3. Helped me study for the SAT
4. Helped me decide which high school courses to take to meet college requirements
5. Helped me choose colleges to apply to
6. Encouraged me to apply to better colleges than I initially thought I would apply to
7. Helped me write/rewrite college application essays
8. Helped me fill out college applications
9. Helped me fill out financial aid forms
10. Helped me find and apply for scholarships
11. Reminded me to turn in college applications
12. Reminded me to turn in financial aid applications
13. Made sure I turned in college applications
14. Made sure I turned in financial aid applications
15. Helped me choose which college to enroll in

16. Helped me convince my parents to let me go to the college I wanted to go to

## APPENDIX C. ADDITIONAL TABLES

**Table C.1. Characteristics of Recruited Schools and Recruitment Pool**

	Total	Participating Schools	Non-Participating Schools
<b>Cohort 1</b>			
11th Grade Enrollment	588	543	615
Share Eligible FRPM	0.742	0.757	0.733
Share AfAm and/or Latino	0.854	0.877	0.841
N	158	59	99
<b>Cohort 2</b>			
11th Grade Enrollment	530	498	553
Share Eligible FRPM	0.724	0.716	0.729
Share AfAm and/or Latino	0.848	0.853	0.845
N	199	82	117

Authors' calculations based on California Department of Education data, National Center for Education Statistics data, and V-SOURCE recruiting records. The non-participating schools are those that were 60 percent or more African American and/or Hispanic, 60 percent or more free or reduced price meal (FRPM) eligible, and had at least 200 juniors, but did not agree to participate in the study.

**Table C.2. Balance Test for Analysis Sample**

	Control Mean	Milestones coeff	Complete coeff	p-value joint F
<b>Gender</b>				
Female	0.684	-0.000	0.004	0.965
<b>Subsidized Lunch Status</b>				
Uses Lunch Tickets	0.469	-0.015	-0.002	0.575
Uses Lunch Tickets Missing	0.127	0.017	0.013	0.144
<b>Race/Ethnicity and Language</b>				
Hispanic, Sp in Home	0.519	-0.003	-0.003	0.970
Hispanic, Oth Lang	0.237	0.003	0.005	0.930
White, NH	0.041	0.010	0.004	0.265
Black, NH	0.063	-0.007	0.001	0.376
Asian/PI, NH	0.116	-0.009	-0.013	0.342
Other NH or Missing	0.024	0.007	0.005	0.303
<b>Parental Education</b>				
Less than HS	0.387	0.009	0.012	0.727
High School (incl Vocational)	0.203	-0.010	-0.004	0.532
Some College	0.234	-0.011	-0.005	0.708
Four-Year College or More	0.143	0.010	0.006	0.646
Missing/DK	0.033	0.002	-0.009	0.120
<b>Self-Reported Cumulative GPA</b>				
Less than 2.0	0.007	0.002	0.007	0.258
2 to 2.99	0.236	-0.003	-0.002	0.965
3 to 3.49	0.303	0.014	0.015	0.368
3.5+	0.425	-0.009	-0.017	0.554
Missing GPA	0.029	-0.004	-0.002	0.631
<b>Educational Aspirations</b>				
Less than BA	0.034	-0.000	0.000	0.999
BA	0.134	0.009	0.009	0.567
Masters	0.212	0.004	0.003	0.957
PhD, MD, JD, etc	0.471	-0.028	-0.027	0.148
Missing	0.150	0.016	0.015	0.263
<b>Immigration Status</b>				
US Born	0.759	-0.028	-0.012	0.045
US Born Missing	0.101	0.019	0.017	0.032
US Born Parent	0.243	-0.007	0.003	0.688
US Born Parent Missing	0.121	0.013	0.010	0.310
Observations	2536	2553	1551	6640

Authors' tabulations from Application and Baseline Surveys. All reported data were collected prior to random assignment. For each variable, we regressed the variable on the treatment indicators and a cohort fixed effect: column (1) is the control mean, columns (2) and (3) report the coefficients on the Milestones and Complete treatment indicators, respectively; column (4) reports the p-value for the test of joint significance for the Milestones and Complete coefficients. We restrict the sample to the analysis sample (i.e., those who remained in the study through the Follow-up Survey).

**Table C.2 (cont). Balance Test for Analysis Sample**

	Control Mean	Milestones coeff	Complete coeff	p-value joint F
<b>Use internet at least a few times a week by...</b>				
Phone	0.626	0.001	-0.005	0.907
Own Computer	0.816	-0.016	-0.022	0.143
At School	0.303	0.007	-0.008	0.623
At a Friend's	0.080	-0.010	-0.012	0.170
At the Library	0.086	-0.004	0.000	0.862
Any Method	0.961	-0.001	-0.001	0.991
Internet Access Missing	0.003	0.002	0.003	0.299
<b>Check email...</b>				
At least a few times a week	0.793	0.021	-0.011	0.025
At least a few times a month	0.953	-0.008	-0.007	0.300
Email frequency missing	0.008	0.001	0.001	0.873
<b>Text Message...</b>				
At least a few times a week	0.832	-0.018	-0.015	0.243
At least a few times a month	0.852	-0.019	-0.015	0.190
Text frequency missing	0.007	0.007	-0.001	0.035
<b>Responded to Baseline Survey</b>				
Clicked on Survey	0.907	-0.018	-0.013	0.072
Responded to at least 80% of items	0.879	-0.014	-0.008	0.254
Observations	2536	2553	1551	6640

Authors' tabulations from Application and Baseline Surveys. All reported data were collected prior to random assignment. For each variable, we regressed the variable on the treatment indicators and a cohort fixed effect: column (1) is the control mean, columns (2) and (3) report the coefficients on the Milestones and Complete treatment indicators, respectively; column (4) reports the p-value for the test of joint significance for the Milestones and Complete coefficients. We restrict the sample to the analysis sample (i.e., those who remained in the study through the Follow-up Survey).

**Table C.3. Balance Test for Follow-up Survey Respondents**

	Control Mean	Milestones coeff	Complete coeff	p-value joint F
<b>Gender</b>				
Female	0.689	0.005	-0.002	0.872
<b>Subsidized Lunch Status</b>				
Uses Lunch Tickets	0.492	-0.020	-0.010	0.470
Uses Lunch Tickets Missing	0.092	0.024	0.016	0.043
<b>Race/Ethnicity and Language</b>				
Hisp, Sp in Home	0.526	-0.005	0.001	0.924
Hisp, Oth Lang	0.232	-0.000	-0.006	0.886
White, NH	0.040	0.010	0.006	0.329
Black, NH	0.060	-0.007	-0.002	0.512
Asian/PI, NH	0.116	-0.003	-0.003	0.949
Other NH or Missing	0.024	0.004	0.003	0.685
<b>Parental Education</b>				
Less than HS	0.394	0.002	0.005	0.958
High School (incl Vocational)	0.204	-0.015	-0.004	0.441
Some College	0.227	-0.002	-0.004	0.975
Four-Year College or More	0.144	0.015	0.013	0.419
Missing/DK	0.031	-0.000	-0.011	0.082
<b>Self-Reported Cumulative GPA</b>				
Less than 2.0	0.006	0.001	0.005	0.264
2 to 2.99	0.219	-0.005	-0.003	0.895
3 to 3.49	0.305	0.014	0.010	0.540
3.5+	0.442	-0.003	-0.006	0.945
Missing GPA	0.029	-0.007	-0.005	0.361
<b>Educational Aspirations</b>				
Less than BA	0.032	-0.002	-0.002	0.914
BA	0.135	0.007	0.006	0.718
Masters	0.222	0.003	-0.001	0.946
PhD, MD, JD, etc	0.491	-0.030	-0.021	0.199
Missing	0.120	0.022	0.018	0.107
<b>Immigration Status</b>				
US Born	0.785	-0.039	-0.018	0.006
US Born Missing	0.070	0.025	0.017	0.006
US Born Parent	0.244	-0.006	-0.005	0.848
US Born Parent Missing	0.090	0.016	0.010	0.195
Observations	2268	2213	1336	5817

Authors' tabulations from Application and Baseline Surveys. All reported data were collected prior to random assignment. For each variable, we regressed the variable on the treatment indicators and a cohort fixed effect: column (1) is the control mean, columns (2) and (3) report the coefficients on the Milestones and Complete treatment indicators, respectively; column (4) reports the p-value for the test of joint significance for the Milestones and Complete coefficients. We restrict the sample to those who answered at least 80 percent of items on the Follow-up Survey.

**Table C.3 (cont). Balance Test for Follow-up Survey Respondents**

	Control Mean	Milestones coeff	Complete coeff	p-value joint F
<b>Use internet at least a few times a week</b>				
<b>by...</b>				
Phone	0.617	0.007	-0.000	0.858
Own Computer	0.823	-0.009	-0.009	0.659
At School	0.300	0.005	-0.008	0.708
At a Friend's	0.074	-0.009	-0.011	0.216
At the Library	0.082	-0.004	0.003	0.777
Any Method	0.959	0.005	0.002	0.662
Internet Access Missing	0.003	0.002	0.002	0.362
<b>Check email...</b>				
At least a few times a week	0.801	0.026	-0.005	0.018
At least a few times a month	0.955	0.000	-0.002	0.951
Email frequency missing	0.007	0.002	0.001	0.819
<b>Text Message...</b>				
At least a few times a week	0.830	-0.016	-0.015	0.373
At least a few times a month	0.851	-0.018	-0.016	0.280
Text frequency missing	0.006	0.006	-0.000	0.064
<b>Responded to Baseline Survey</b>				
Clicked on Survey	0.934	-0.024	-0.012	0.017
Responded to at least 80% of items	0.913	-0.022	-0.009	0.063
Observations	2268	2213	1336	5817

Authors' tabulations from Application and Baseline Surveys. All reported data were collected prior to random assignment. For each variable, we regressed the variable on the treatment indicators and a cohort fixed effect: column (1) is the control mean, columns (2) and (3) report the coefficients on the Milestones and Complete treatment indicators, respectively; column (4) reports the p-value for the test of joint significance for the Milestones and Complete coefficients. We restrict the sample to those who answered at least 80 percent of items on the Follow-up Survey.

**Table C.4. Effects of Assignment to V-SOURCE on Additional Financial Aid Outcomes**

	(1)	(2)	(3)	(4)	(5)
	Self-Reported Submitted FAFSA	Admin Submitted FAFSA	Admin Submitted FAFSA	Admin Submitted FAFSA on Time	Admin Submitted FAFSA on Time
Milestones	0.020* (0.009)	0.019* (0.010)	0.016 (0.011)	0.028* (0.011)	0.033** (0.011)
Complete	0.022 (0.012)	0.009 (0.012)	0.002 (0.012)	0.017 (0.012)	0.022 (0.012)
Sample	Self-Report	Self-Report	Full	Full	Self-Report
Observations	5,954	5,954	6,640	6,640	5,954
Control Mean	0.864	0.850	0.831	0.789	0.811

Self-reported outcomes come from the Follow-up Survey; administrative outcomes come from the California Student Aid Commission (CSAC). "Self-Report" sample includes students with non-missing Self-Reported Submitted FAFSA. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses. We do not apply adjustments for multiple comparisons in this table because these are supplementary outcomes.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table C.5. Effects of Assignment to V-SOURCE on College Enrollment Outcomes, CSAC + NSC Data**

	(1)	(2)	(3)	(4)	(5)
	Any College	Any 4-Year	Any Selective	Any CSU	Any UC
Milestones	-0.004 (0.010)	-0.002 (0.010)	0.008 (0.008)	-0.010 (0.012)	0.011 (0.008)
Complete	-0.003 (0.011)	0.001 (0.012)	-0.004 (0.009)	0.003 (0.012)	-0.000 (0.011)
Observations	6,640	6,640	6,640	6,640	6,640
Control Mean	0.808	0.518	0.147	0.295	0.161

Outcomes come from the National Student Clearinghouse (NSC) and California Student Aid Commission (CSAC). College enrollment reflects any enrollment in the fall (September 1 to December 31) following on-time high school graduation. Selective colleges are those with Barron's ratings of very competitive plus to most competitive. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses.

We do not apply adjustments for multiple comparisons in this table because these are supplementary outcomes.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table C.6. Comparison of V-SOURCE Students to SOURCE Students**

	V-SOURCE	SOURCE	Diff
<b>Demographics</b>			
Female	0.688	0.692	-0.004
Spanish in the Home	0.518	0.441	0.076
High Par Ed: <HS	0.407	0.359	0.048
High Par Ed: Some Coll	0.389	0.452	-0.064
Hispanic/Latino	0.761	0.612	0.149
White	0.084	0.111	-0.027
Asian/Pacific Islander	0.125	0.121	0.004
Black/African American	0.082	0.132	-0.050
N	6404	2253	8657
<b>Grades</b>			
GPA (Jr Year)	3.297	3.096	0.201
Avg 5 Common Grades	3.154	3.174	-0.020
Algebra I Grade	3.211	3.129	0.082
Geometry Grade	2.910	2.836	0.074
Eng 9 Grade	3.197	3.308	-0.111
Eng 10 Grade	3.213	3.235	-0.022
Hist/World Hist Grade	3.177	3.200	-0.024
Chem/Bio Grade	2.972	2.998	-0.027
N	4931	1792	6723
<b>Educational Expectations</b>			
Expects BA or Higher	0.846	0.924	-0.077
Expects Grad Degree	0.489	0.483	0.006
N	5726	2499	8225

Authors' tabulations from V-SOURCE Application and Baseline Surveys and SOURCE data. All reported data were collected prior to random assignment. Some variables are defined differently than in other tables for comparability with SOURCE data. See text for details on comparability of measures for V-SOURCE and SOURCE.

## APPENDIX D. HETEROGENEOUS TREATMENT EFFECTS BY DEMOGRAPHIC CHARACTERISTICS

We present confirmatory heterogeneous treatment effects for the demographic groups used to create blocking groups for random assignment. Of course, these demographic characteristics are not randomly assigned, so we cannot say *why* treatment effects differ across groups. Nonetheless, to give the reader a sense of how students with different demographics vary on other characteristics, we present summary statistics by subgroup before presenting the heterogeneous treatment effect estimates.

The variables in the first part of the summary table are self-explanatory or described elsewhere in the paper. We list the items from which we created the other variables here. For constructs described as indices below, we constructed the index from the values using the following procedures: We assigned numeric values to the categorical responses, reverse coded as necessary, then took the simple average across the items; finally, we standardized the index to have mean of 0 and standard deviation of 1. When we draw from both the Application and Baseline Survey, we create a standardized index within each survey, average the two, then re-standardize.<sup>2</sup>

*Procrastinator/Disorganized* is an average of students' responses to the following items about their tendency to procrastinate or forget about deadlines. These items were asked on both the Application and Baseline Surveys.

How true are the following statements about you?

- I wait until the last minute to do things.
- I miss out on things I want to do because I forget to sign up.
- I put off starting things that I don't like to do.
- I often miss important deadlines if no one reminds me about them.
- When I have something important to do, I waste time on things that are more fun.
- Sometimes when my life is really busy, I don't get all of my homework done.

*Hard Worker* is an average of students' responses to questions about the extent to which they work hard and use their time wisely. These questions were asked on the Application Survey.

How true are the following statements about you?

- I make sure to get my work done before I have fun.
- I use my time wisely.
- I have a good system for remembering deadlines and important dates.
- My teachers describe me as a "hard worker."
- I always do "extra credit" when my teachers offer it.
- I always try as hard as I can to do school assignments well.

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<sup>2</sup> The Survey Instruments are available in Phillips and Reber (2019).

*Internal Locus of Control* is an index based on the Perlin Mastery Scale and indicates the extent to which students feel they have control over their lives. These were asked on the Baseline Survey.

How much do you agree or disagree with the following statements?

- I have little control over the things that happen to me.
- There is really no way I can solve some of the problems I have.
- What happens to me in the future mostly depends on me.
- There is little I can do to change many of the important things in my life.
- I often feel helpless in dealing with the problems of life.
- I can do just about anything I really set my mind to do.
- Sometimes I feel that I'm being pushed around in life.
- Becoming a success is a matter of hard work; luck has little or nothing to do with it.

Parents' educational expectations for the student (*Parents Expect <BA*, *Parents Expect BA*, and *Parents Expect >BA*) are based on student reports of their parents' (or guardians') expectations on the Baseline Survey. We coded students to the highest level of education expected by either of their parents.

*Teachers and Counselors Expect College* is an index based on student reports of guidance counselor and teachers' expectations on the Baseline Survey.

How true are the following statements about the adults at your school?

- My guidance counselor(s) expect me to go to college.
- Most of my teachers expect me to go to college.

The data on *People Will Help with Application if Asked* are binary variables coded from the Application Survey. Students were asked, "Thinking of the people in your life, which of the following people... will help you with college applications if you ask?"

*Parent Will Remind Apps* is a binary variable equal to 1 if students indicated on the Application survey that their parent "will remind you to turn in college applications?" *Parent Will Make Sure Turn in Apps* is equal to 1 if students indicated on that survey that their parent "will **make sure** you turn in college applications."

*School Support for Applying to College Index* combines responses to several questions on the Application and Baseline survey asking students which people they can rely on for information and support during the college application process. This index uses the responses for teacher, counselor, and mentor from a program for the following items.

Thinking of the people in your life, which of the following people...

- Have you talked to about where you might go to college?
- Will help you with college applications if you ask?
- Will remind you to turn in college applications?
- Will *make sure* that you turn in college applications?
- Have you talked to about preparing for the PSAT or SAT? (this item was on Baseline only)

*College Access Program Participation* is a binary variable equal to 1 if students reported at baseline that they had participated in any of the following college access programs: Talent Search, Upward Bound, GEAR UP, AVID, or MESA.

**Table D.1a. Characteristics of V-SOURCE Research Participants, by Gender**

	Male	Female	Total
<b>Gender</b>			
Female	0.000	1.000	0.684
N	2096	4544	6640
<b>Subsidized Lunch Status</b>			
Uses Lunch Tickets	0.497	0.554	0.537
N	1746	3982	5728
<b>Race/Ethnicity and Language</b>			
Hispanic, Sp in Home	0.531	0.511	0.518
Hispanic, Oth Lang	0.229	0.244	0.239
White, NH	0.045	0.046	0.046
Black, NH	0.054	0.063	0.060
Asian/PI, NH	0.119	0.105	0.109
Other NH or Missing	0.021	0.031	0.028
N	2096	4544	6640
<b>Parental Education</b>			
Missing/DK	0.042	0.027	0.032
Less than HS	0.374	0.402	0.393
High School (incl Vocational)	0.202	0.197	0.198
Some College	0.224	0.231	0.229
Four-Year College or More	0.158	0.143	0.148
N	2096	4544	6640
<b>Self-Reported GPA</b>			
Less than 2.0	0.013	0.008	0.010
2 to 2.99	0.261	0.231	0.241
3 to 3.49	0.331	0.316	0.321
3.5+	0.395	0.444	0.429
N	2061	4400	6461
<b>Educational Aspirations</b>			
Less than BA	0.036	0.042	0.040
BA	0.175	0.161	0.165
Masters	0.286	0.241	0.255
PhD, MD, JD, etc	0.504	0.556	0.540
N	1704	3867	5571
<b>Immigration Status</b>			
US Born	0.828	0.845	0.840
US Born Parent	0.250	0.288	0.276
N	1773	4007	5780

**Table D.1a (cont). Characteristics of V-SOURCE Research Participants, by Gender**

	Male	Female	Total
<b>Self-Perceptions</b>			
Procrastinator/Disorganized	0.175	-0.070	0.005
Hard Worker	-0.170	0.091	0.011
Internal Locus of Control	0.055	-0.025	-0.000
N	1740	3944	5684
<b>Others' Educational Expectations</b>			
Parents Expect <BA	0.154	0.150	0.151
Parents Expect BA	0.284	0.215	0.236
Parents Expect >BA	0.562	0.635	0.613
Tch/Cnsl Expect College (Index)	-0.003	0.017	0.011
N	1644	3783	5427
<b>People Will Help with Apps if Asked</b>			
Parent	0.453	0.418	0.429
Sibling	0.389	0.364	0.372
Teacher or Counselor	0.786	0.792	0.790
N	2080	4531	6611
<b>Other College Access Support</b>			
Parent will Remind Turn in Apps	0.644	0.639	0.641
Parent will Make Sure Turn in Apps	0.680	0.678	0.678
School Support Index	0.069	-0.020	0.008
N	2080	4531	6611
<b>College Access Program Participation</b>			
Participated at Baseline	0.354	0.388	0.378
N	1787	4068	5855

**Table D.1b. Effects of Assignment to V-SOURCE on Self-Reported Experiences Applying to College and for Financial Aid: Main Experience and Support Constructs, by Gender**

	(1) Sought Information	(2) Had Information	(3) Had Support
<b>Milestones</b>			
Male	0.026 (0.046)	0.088 (0.046)	0.061 (0.047)
Female	-0.059 (0.034)	0.084** (0.033)	0.088*** (0.031)
<b>Complete</b>			
Male	0.000 (0.062)	0.083 (0.057)	0.106* (0.052)
Female	0.025 (0.039)	0.121*** (0.039)	0.172**** (0.032)
Observations	5,986	5,993	5,931
<b>Control Mean</b>			
Overall	-0.000	-0.000	-0.000
Male	-0.172	-0.016	-0.013
Female	0.077	0.007	0.006

Outcomes come from the Follow-up Survey. We standardized each outcome to have mean of 0 and standard deviation of 1 in the control group. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses.

† Statistically significant at the 5% level after adjustment for multiple comparisons.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table D.1c. Effects of Assignment to V-SOURCE on Self-Reported Milestone Completion, by Gender**

	(1) Registered SAT/ACT	(2) Took SAT/ACT	(3) Applied 2 systems	(4) Submitted FAFSA on Time
<b>Milestones</b>				
Male	0.022 (0.020)	0.025 (0.021)	0.007 (0.024)	0.039 (0.022)
Female	0.015 (0.011)	0.014 (0.011)	0.006 (0.014)	0.022 (0.013)
<b>Complete</b>				
Male	0.045* (0.018)	0.045* (0.020)	0.033 (0.023)	0.004 (0.023)
Female	0.014 (0.013)	0.014 (0.012)	0.063***† (0.016)	0.022 (0.013)
Observations	6,045	6,043	5,986	6,640
<b>Control Mean</b>				
Overall	0.842	0.829	0.489	0.789
Male	0.825	0.808	0.469	0.768
Female	0.850	0.838	0.498	0.798

ACT/SAT and application data are from Follow-up Survey; on-time FAFSA submission is based on administrative data from CSAC. These are the college-related tasks for which V-SOURCE students could receive Milestones Rewards. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses.

† Statistically significant at the 5% level after adjustment for multiple comparisons.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table D.1d. Effects of Assignment to V-SOURCE on Self-Reported College Application Outcomes, by Gender**

	(1) Any 4-Year	(2) Any Selective	(3) Any CSU	(4) Any UC
<b>Milestones</b>				
Male	0.043* (0.020)	0.013 (0.024)	0.050* (0.021)	0.007 (0.021)
Female	0.016 (0.012)	-0.006 (0.014)	0.012 (0.013)	0.009 (0.014)
<b>Complete</b>				
Male	0.062*** (0.020)	0.011 (0.024)	0.062*** (0.021)	0.008 (0.022)
Female	0.021 (0.014)	0.048*** (0.016)	0.031 (0.017)	0.061*** (0.016)
Observations	5,986	5,986	5,986	5,986
<b>Control Mean</b>				
Overall	0.779	0.476	0.727	0.445
Male	0.749	0.476	0.681	0.447
Female	0.793	0.475	0.748	0.445

Outcomes come from the Follow-up Survey. Selective colleges are those with Barron's ratings of very competitive plus to most competitive. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses.

† Statistically significant at the 5% level after adjustment for multiple comparisons.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table D.1e. Effects of Assignment to V-SOURCE on Self-Reported College Admissions Outcomes, by Gender**

	(1) Any 4-Year	(2) Any Selective	(3) Any CSU	(4) Any UC
<b>Milestones</b>				
Male	0.015 (0.021)	0.006 (0.016)	0.030 (0.022)	0.001 (0.016)
Female	-0.006 (0.012)	0.005 (0.013)	-0.007 (0.015)	0.014 (0.012)
<b>Complete</b>				
Male	0.037 (0.022)	0.017 (0.017)	0.036 (0.021)	0.022 (0.020)
Female	0.008 (0.016)	0.004 (0.013)	0.021 (0.017)	0.009 (0.013)
Observations	5,986	5,986	5,986	5,986
<b>Control Mean</b>				
Overall	0.673	0.234	0.616	0.295
Male	0.639	0.246	0.568	0.303
Female	0.688	0.229	0.637	0.291

Outcomes come from the Follow-up Survey. Selective colleges are those with Barron's ratings of very competitive plus to most competitive. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses.

† Statistically significant at the 5% level after adjustment for multiple comparisons.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table D.1f. Effects of Assignment to V-SOURCE on College Enrollment Outcomes, by Gender**

	(1) Any College	(2) Any 4-Year	(3) Any Selective	(4) Any CSU	(5) Any UC
<b>Milestones</b>					
Male	-0.008 (0.023)	-0.012 (0.021)	0.005 (0.015)	-0.012 (0.019)	-0.010 (0.015)
Female	0.011 (0.014)	0.010 (0.013)	0.020* (0.009)	-0.014 (0.013)	0.028** (0.010)
<b>Complete</b>					
Male	-0.023 (0.027)	-0.011 (0.023)	-0.025 (0.017)	0.004 (0.020)	-0.022 (0.017)
Female	0.019 (0.016)	0.015 (0.017)	0.014 (0.011)	0.002 (0.015)	0.017 (0.011)
Observations	6,640	6,640	6,640	6,640	6,640
<b>Control Mean</b>					
Overall	0.705	0.433	0.117	0.249	0.127
Male	0.702	0.419	0.132	0.227	0.147
Female	0.706	0.439	0.110	0.259	0.118

Data are from the National Student Clearinghouse (NSC). College enrollment reflects any enrollment in the fall (September 1 to December 31) following on-time high school graduation. Selective colleges are those with Barron's ratings of very competitive plus to most competitive. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses.

† Statistically significant at the 5% level after adjustment for multiple comparisons.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table D.1g. Effects of Assignment to V-SOURCE on College Persistence Outcomes, by Gender**

	(1) Any College	(2) Any 4-Year	(3) Any Selective	(4) Any CSU	(5) Any UC
<b>Milestones</b>					
Male	0.001 (0.024)	-0.007 (0.021)	0.003 (0.014)	-0.009 (0.017)	-0.007 (0.015)
Female	0.011 (0.016)	0.010 (0.014)	0.017* (0.008)	-0.011 (0.014)	0.026** (0.009)
<b>Complete</b>					
Male	-0.001 (0.027)	0.011 (0.022)	-0.021 (0.016)	0.019 (0.020)	-0.011 (0.016)
Female	0.027 (0.017)	0.020 (0.016)	0.016 (0.011)	0.001 (0.013)	0.021 (0.011)
Observations	6,640	6,640	6,640	6,640	6,640
<b>Control Mean</b>					
Overall	0.633	0.367	0.108	0.203	0.115
Male	0.615	0.352	0.122	0.181	0.132
Female	0.641	0.374	0.102	0.214	0.107

Data are from the National Student Clearinghouse (NSC). College enrollment reflects any enrollment in the fall (September 1 to December 31) following on-time high school graduation. Selective colleges are those with Barron's ratings of very competitive plus to most competitive. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses.

† Statistically significant at the 5% level after adjustment for multiple comparisons.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table D.2a. Characteristics of V-SOURCE Research Participants, by Race/Ethnicity and Home Language**

	Hisp/Span	Hisp/Oth	Other	Total
<b>Gender</b>				
Female	0.676	0.698	0.689	0.684
N	3437	1588	1615	6640
<b>Subsidized Lunch Status</b>				
Uses Lunch Tickets	0.584	0.482	0.488	0.537
N	2993	1344	1391	5728
<b>Race/Ethnicity and Language</b>				
Hisp, Sp in Home	1.000	0.000	0.000	0.518
Hisp, Oth Lang	0.000	1.000	0.000	0.239
White, NH	0.000	0.000	0.188	0.046
Black, NH	0.000	0.000	0.248	0.060
Asian/PI, NH	0.000	0.000	0.450	0.109
Other NH or Missing	0.000	0.000	0.114	0.028
N	3437	1588	1615	6640
<b>Parental Education</b>				
Missing/DK	0.037	0.012	0.040	0.032
Less than HS	0.600	0.236	0.108	0.393
High School (incl Vocational)	0.180	0.265	0.171	0.198
Some College	0.131	0.358	0.310	0.229
Four-Year College or More	0.051	0.130	0.372	0.148
N	3437	1588	1615	6640
<b>Self-Reported GPA</b>				
Less than 2.0	0.010	0.014	0.006	0.010
2 to 2.99	0.254	0.277	0.177	0.241
3 to 3.49	0.335	0.325	0.287	0.321
3.5+	0.400	0.385	0.530	0.429
N	3341	1536	1584	6461
<b>Educational Aspirations</b>				
Less than BA	0.042	0.047	0.030	0.040
BA	0.164	0.169	0.166	0.165
Masters	0.255	0.260	0.248	0.255
PhD, MD, JD, etc	0.539	0.524	0.556	0.540
N	2907	1314	1350	5571
<b>Immigration Status</b>				
US Born	0.830	0.969	0.737	0.840
US Born Parent	0.073	0.554	0.440	0.276
N	3004	1362	1414	5780

**Table D.2a (cont). Characteristics of V-SOURCE Research Participants, by Race/Ethnicity and Home Language**

	Hisp/Span	Hisp/Oth	Other	Total
<b>Self-Perceptions</b>				
Procrastinator/Disorganized	-0.020	-0.010	0.074	0.005
Hard Worker	0.011	-0.024	0.046	0.011
Internal Locus of Control	0.003	0.070	-0.076	-0.000
N	2954	1343	1387	5684
<b>Others' Educational Expectations</b>				
Parents Expect <BA	0.173	0.143	0.112	0.151
Parents Expect BA	0.205	0.240	0.300	0.236
Parents Expect >BA	0.623	0.617	0.589	0.613
Tch/Cnsl Expect College (Index)	-0.032	-0.050	0.165	0.011
N	2821	1291	1315	5427
<b>People Will Help with Apps if Asked</b>				
Parent	0.282	0.575	0.600	0.429
Sibling	0.377	0.341	0.392	0.372
Teacher or Counselor	0.798	0.753	0.812	0.790
N	3423	1580	1608	6611
<b>Other College Access Support</b>				
Parent will Remind Turn in Apps	0.569	0.711	0.723	0.641
Parent will Make Sure Turn in Apps	0.602	0.752	0.767	0.678
School Support Index	-0.007	-0.057	0.101	0.008
N	3423	1580	1608	6611
<b>College Access Program Participation</b>				
Participated at Baseline	0.399	0.356	0.353	0.378
N	3056	1375	1424	5855

**Table D.2b. Effects of Assignment to V-SOURCE on Self-Reported Experiences Applying to College and for Financial Aid: Main Experience and Support Constructs, by Race/Ethnicity and Home Language**

	(1) Sought Information	(2) Had Information	(3) Had Support
<b>Milestones</b>			
Hisp/Span	-0.036 (0.035)	0.063 (0.036)	0.065 (0.033)
Hisp/Oth	-0.076 (0.059)	0.098 (0.056)	0.073 (0.056)
Other	0.015 (0.065)	0.123* (0.057)	0.119 (0.061)
<b>Complete</b>			
Hisp/Span	0.067 (0.045)	0.149*** (0.037)	0.169*** (0.047)
Hisp/Oth	-0.029 (0.057)	0.016 (0.075)	0.098 (0.061)
Other	-0.041 (0.066)	0.113 (0.068)	0.167*** (0.063)
Observations	5,986	5,993	5,931
<b>Control Mean</b>			
Overall	0.000	-0.000	0.000
Hisp/Span	-0.040	0.006	0.021
Hisp/Oth	-0.057	-0.030	-0.028
Other	0.143	0.016	-0.019

Outcomes come from the Follow-up Survey. We standardized each outcome to have mean of 0 and standard deviation of 1 in the control group. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses.

† Statistically significant at the 5% level after adjustment for multiple comparisons.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table D.2c. Effects of Assignment to V-SOURCE on Self-Reported Milestone Completion, by Race/Ethnicity and Home Language**

	(1) Registered SAT/ACT	(2) Took SAT/ACT	(3) Applied 2 systems	(4) Submitted FAFSA on Time
<b>Milestones</b>				
Hisp/Span	0.021 (0.013)	0.026* (0.012)	0.012 (0.015)	0.035* (0.016)
Hisp/Oth	0.015 (0.023)	0.006 (0.025)	0.002 (0.024)	0.012 (0.023)
Other	0.013 (0.022)	0.009 (0.023)	-0.002 (0.025)	0.028 (0.023)
<b>Complete</b>				
Hisp/Span	0.028 (0.015)	0.035* (0.013)	0.080**** (0.018)	0.036* (0.017)
Hisp/Oth	0.045* (0.023)	0.044 (0.024)	0.036 (0.030)	0.008 (0.029)
Other	-0.003 (0.019)	-0.016 (0.022)	0.015 (0.031)	-0.012 (0.025)
Observations	6,045	6,043	5,986	6,640
<b>Control Mean</b>				
Overall	0.842	0.829	0.489	0.789
Hisp/Span	0.841	0.823	0.458	0.813
Hisp/Oth	0.807	0.798	0.449	0.757
Other	0.879	0.871	0.595	0.767

ACT/SAT and application data are from Follow-up Survey; on-time FAFSA submission is based on administrative data from CSAC. These are the college-related tasks for which V-SOURCE students could receive Milestones Rewards. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses.

† Statistically significant at the 5% level after adjustment for multiple comparisons.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table D.2d. Effects of Assignment to V-SOURCE on Self-Reported College Application Outcomes, by Race/Ethnicity and Home Language**

	(1) Any 4-Year	(2) Any Selective	(3) Any CSU	(4) Any UC
<b>Milestones</b>				
Hisp/Span	0.031* (0.012)	0.016 (0.016)	0.032* (0.015)	0.026 (0.015)
Hisp/Oth	0.023 (0.021)	-0.009 (0.025)	0.027 (0.020)	0.004 (0.025)
Other	0.013 (0.017)	-0.025 (0.022)	0.003 (0.020)	-0.024 (0.023)
<b>Complete</b>				
Hisp/Span	0.053***† (0.015)	0.065***† (0.018)	0.065***† (0.017)	0.075***† (0.017)
Hisp/Oth	0.045 (0.024)	0.025 (0.031)	0.049 (0.026)	0.035 (0.031)
Other	-0.015 (0.023)	-0.013 (0.028)	-0.016 (0.032)	-0.012 (0.029)
Observations	5,986	5,986	5,986	5,986
<b>Control Mean</b>				
Overall	0.779	0.476	0.727	0.445
Hisp/Span	0.777	0.448	0.741	0.418
Hisp/Oth	0.739	0.425	0.685	0.393
Other	0.823	0.586	0.736	0.555

Outcomes come from the Follow-up Survey. Selective colleges are those with Barron's ratings of very competitive plus to most competitive. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses.

† Statistically significant at the 5% level after adjustment for multiple comparisons.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table D.2e. Effects of Assignment to V-SOURCE on Self-Reported College Admissions Outcomes, by Race/Ethnicity and Home Language**

	(1) Any 4-Year	(2) Any Selective	(3) Any CSU	(4) Any UC
<b>Milestones</b>				
Hisp/Span	0.015 (0.016)	0.014 (0.016)	0.014 (0.018)	0.028 (0.015)
Hisp/Oth	-0.052* (0.025)	-0.022 (0.017)	-0.019 (0.027)	-0.007 (0.016)
Other	0.020 (0.020)	0.012 (0.020)	0.006 (0.024)	-0.014 (0.020)
<b>Complete</b>				
Hisp/Span	0.029 (0.021)	0.023 (0.018)	0.032 (0.022)	0.047** (0.014)
Hisp/Oth	0.023 (0.029)	-0.011 (0.024)	0.034 (0.031)	0.001 (0.024)
Other	-0.011 (0.023)	-0.008 (0.022)	0.008 (0.030)	-0.049 (0.028)
Observations	5,986	5,986	5,986	5,986
<b>Control Mean</b>				
Overall	0.673	0.234	0.616	0.295
Hisp/Span	0.662	0.210	0.627	0.266
Hisp/Oth	0.644	0.207	0.574	0.253
Other	0.725	0.314	0.630	0.398

Outcomes come from the Follow-up Survey. Selective colleges are those with Barron's ratings of very competitive plus to most competitive. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses.

† Statistically significant at the 5% level after adjustment for multiple comparisons.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table D.2f. Effects of Assignment to V-SOURCE on College Enrollment Outcomes, by Race/Ethnicity and Home Language**

	(1) Any College	(2) Any 4-Year	(3) Any Selective	(4) Any CSU	(5) Any UC
<b>Milestones</b>					
Hisp/Span	0.026 (0.018)	0.025 (0.018)	0.021 (0.011)	-0.019 (0.015)	0.032* (0.013)
Hisp/Oth	-0.006 (0.022)	-0.028 (0.025)	0.003 (0.014)	0.001 (0.026)	-0.007 (0.014)
Other	-0.027 (0.023)	-0.014 (0.027)	0.014 (0.019)	-0.014 (0.025)	0.005 (0.019)
<b>Complete</b>					
Hisp/Span	0.024 (0.020)	0.010 (0.019)	0.016 (0.012)	-0.014 (0.021)	0.023* (0.011)
Hisp/Oth	-0.021 (0.026)	-0.039 (0.029)	-0.008 (0.017)	-0.006 (0.028)	-0.014 (0.018)
Other	-0.005 (0.027)	0.048 (0.031)	-0.020 (0.022)	0.049 (0.030)	-0.015 (0.026)
Observations	6,640	6,640	6,640	6,640	6,640
<b>Control Mean</b>					
Overall	0.705	0.433	0.117	0.249	0.127
Hisp/Span	0.658	0.393	0.094	0.260	0.104
Hisp/Oth	0.746	0.447	0.101	0.249	0.115
Other	0.763	0.504	0.182	0.224	0.190

Data are from the National Student Clearinghouse (NSC). College enrollment reflects any enrollment in the fall (September 1 to December 31) following on-time high school graduation. Selective colleges are those with Barron's ratings of very competitive plus to most competitive. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses.

† Statistically significant at the 5% level after adjustment for multiple comparisons.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table D.2g. Effects of Assignment to V-SOURCE on College Persistence Outcomes, by Race/Ethnicity and Home Language**

	(1) Any College	(2) Any 4-Year	(3) Any Selective	(4) Any CSU	(5) Any UC
<b>Milestones</b>					
Hisp/Span	0.020 (0.021)	0.026 (0.017)	0.025* (0.011)	-0.019 (0.014)	0.034** (0.012)
Hisp/Oth	0.018 (0.024)	0.002 (0.025)	0.001 (0.014)	0.019 (0.024)	-0.006 (0.014)
Other	-0.027 (0.022)	-0.039 (0.024)	-0.003 (0.019)	-0.019 (0.022)	-0.001 (0.019)
<b>Complete</b>					
Hisp/Span	0.032 (0.022)	0.032 (0.020)	0.025* (0.012)	-0.008 (0.018)	0.035** (0.011)
Hisp/Oth	0.002 (0.030)	-0.017 (0.026)	-0.009 (0.016)	0.013 (0.024)	-0.011 (0.016)
Other	0.006 (0.029)	0.022 (0.030)	-0.028 (0.021)	0.035 (0.026)	-0.018 (0.025)
Observations	6,640	6,640	6,640	6,640	6,640
<b>Control Mean</b>					
Overall	0.633	0.367	0.108	0.203	0.115
Hisp/Span	0.595	0.333	0.083	0.219	0.089
Hisp/Oth	0.643	0.349	0.093	0.183	0.103
Other	0.703	0.457	0.178	0.190	0.182

Data are from the National Student Clearinghouse (NSC). College enrollment reflects any enrollment in the fall (September 1 to December 31) following on-time high school graduation. Selective colleges are those with Barron's ratings of very competitive plus to most competitive. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses.

† Statistically significant at the 5% level after adjustment for multiple comparisons.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table D.3a. Characteristics of V-SOURCE Research Participants, by Parental Education**

	< Some Coll	Some Coll+	Total
<b>Gender</b>			
Female	0.686	0.681	0.684
N	3990	2469	6459
<b>Subsidized Lunch Status</b>			
Uses Lunch Tickets	0.575	0.478	0.538
N	3432	2145	5577
<b>Race/Ethnicity and Language</b>			
Hispanic, Sp in Home	0.680	0.250	0.516
Hispanic, Oth Lang	0.200	0.309	0.242
White, NH	0.015	0.096	0.046
Black, NH	0.031	0.109	0.061
Asian/PI, NH	0.059	0.190	0.109
Other NH or Missing	0.015	0.046	0.027
N	3990	2469	6459
<b>Parental Education</b>			
Missing/DK	0.035	0.000	0.021
Less than HS	0.643	0.000	0.397
High School (incl Vocational)	0.320	0.000	0.198
Some College	0.001	0.609	0.233
Four-Year College or More	0.002	0.391	0.150
N	3990	2469	6459
<b>Self-Reported GPA</b>			
Less than 2.0	0.011	0.008	0.010
2 to 2.99	0.256	0.212	0.239
3 to 3.49	0.331	0.309	0.322
3.5+	0.403	0.471	0.429
N	3865	2423	6288
<b>Educational Aspirations</b>			
Less than BA	0.049	0.026	0.040
BA	0.171	0.157	0.165
Masters	0.255	0.252	0.254
PhD, MD, JD, etc	0.525	0.565	0.540
N	3316	2111	5427
<b>Immigration Status</b>			
US Born	0.855	0.817	0.840
US Born Parent	0.184	0.425	0.278
N	3446	2182	5628

The parental education variable that defines the columns is the some college or more variable used in blocking at random assignment. The more detailed parental education variable was coded later using additional information from the Baseline Survey; that explains why a small number of students are classified differently by the two versions of the parental education variable.

**Table D.3a (cont). Characteristics of V-SOURCE Research Participants, by Parental Education**

	< Some Coll	Some Coll+	Total
<b>Self-Perceptions</b>			
Procrastinator/Disorganized	-0.002	0.015	0.005
Hard Worker	-0.016	0.058	0.012
Internal Locus of Control	-0.018	0.024	-0.001
N	3401	2138	5539
<b>Others' Educational Expectations</b>			
Parents Expect <BA	0.182	0.104	0.151
Parents Expect BA	0.220	0.258	0.235
Parents Expect >BA	0.598	0.638	0.614
Tch/Cnsl Expect College (Index)	-0.035	0.085	0.012
N	3225	2062	5287
<b>People Will Help with Apps if Asked</b>			
Parent	0.310	0.627	0.432
Sibling	0.373	0.369	0.372
Teacher or Counselor	0.793	0.784	0.790
N	3970	2463	6433
<b>Other College Access Support</b>			
Parent will Remind Turn in Apps	0.575	0.749	0.642
Parent will Make Sure Turn in Apps	0.611	0.788	0.679
School Support Index	-0.015	0.044	0.008
N	3970	2463	6433
<b>College Access Program Participation</b>			
Participated at Baseline	0.394	0.355	0.379
N	3507	2193	5700

**Table D.3b. Effects of Assignment to V-SOURCE on Self-Reported Experiences Applying to College and for Financial Aid: Main Experience and Support Constructs, by Parental Education**

	(1) Sought Information	(2) Had Information	(3) Had Support
<b>Milestones</b>			
< Some Coll	-0.051 (0.034)	0.047 (0.039)	0.057 (0.036)
Some Coll+	-0.032 (0.048)	0.135**** (0.037)	0.092* (0.039)
<b>Complete</b>			
< Some Coll	0.008 (0.039)	0.100* (0.046)	0.133**† (0.044)
Some Coll+	0.025 (0.057)	0.110 (0.058)	0.164**† (0.049)
Observations	5,821	5,826	5,767
<b>Control Mean</b>			
Overall	0.006	0.008	0.007
< Some Coll	-0.019	0.005	0.002
Some Coll+	0.048	0.011	0.015

Outcomes come from the Follow-up Survey. We standardized each outcome to have mean of 0 and standard deviation of 1 in the control group. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses.

† Statistically significant at the 5% level after adjustment for multiple comparisons.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table D.3c. Effects of Assignment to V-SOURCE on Self-Reported Milestone Completion, by Parental Education**

	(1) Registered SAT/ACT	(2) Took SAT/ACT	(3) Applied 2 systems	(4) Submitted FAFSA on Time
<b>Milestones</b>				
< Some Coll	0.019 (0.013)	0.019 (0.014)	0.009 (0.016)	0.035** (0.013)
Some Coll+	0.022 (0.015)	0.022 (0.016)	0.009 (0.023)	0.023 (0.018)
<b>Complete</b>				
< Some Coll	0.028* (0.012)	0.029* (0.012)	0.079**** (0.018)	0.022 (0.015)
Some Coll+	0.024 (0.017)	0.025 (0.017)	0.019 (0.024)	0.014 (0.020)
Observations	5,879	5,877	5,820	6,459
<b>Control Mean</b>				
Overall	0.843	0.829	0.490	0.789
< Some Coll	0.832	0.817	0.457	0.796
Some Coll+	0.860	0.849	0.543	0.779

ACT/SAT and application data are from Follow-up Survey; on-time FAFSA submission is based on administrative data from CSAC. These are the college-related tasks for which V-SOURCE students could receive Milestones Rewards. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses.

† Statistically significant at the 5% level after adjustment for multiple comparisons.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table D.3d. Effects of Assignment to V-SOURCE on Self-Reported College Application Outcomes, by Parental Education**

	(1) Any 4-Year	(2) Any Selective	(3) Any CSU	(4) Any UC
<b>Milestones</b>				
< Some Coll	0.024 (0.014)	0.016 (0.016)	0.027 (0.015)	0.014 (0.015)
Some Coll+	0.025 (0.015)	-0.022 (0.019)	0.016 (0.017)	0.002 (0.020)
<b>Complete</b>				
< Some Coll	0.036* (0.014)	0.056**** (0.016)	0.047*** (0.017)	0.061**** (0.015)
Some Coll+	0.037 (0.021)	0.009 (0.023)	0.033 (0.022)	0.023 (0.023)
Observations	5,820	5,820	5,820	5,820
<b>Control Mean</b>				
Overall	0.783	0.476	0.731	0.447
< Some Coll	0.766	0.439	0.728	0.421
Some Coll+	0.809	0.537	0.735	0.489

Outcomes come from the Follow-up Survey. Selective colleges are those with Barron's ratings of very competitive plus to most competitive. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses.

† Statistically significant at the 5% level after adjustment for multiple comparisons.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table D.3e. Effects of Assignment to V-SOURCE on Self-Reported College Admissions Outcomes, by Parental Education**

	(1) Any 4-Year	(2) Any Selective	(3) Any CSU	(4) Any UC
<b>Milestones</b>				
< Some Coll	0.009 (0.015)	0.011 (0.014)	0.012 (0.016)	0.003 (0.013)
Some Coll+	-0.012 (0.019)	-0.011 (0.017)	-0.008 (0.023)	0.015 (0.016)
<b>Complete</b>				
< Some Coll	0.026 (0.017)	0.000 (0.015)	0.030 (0.019)	0.007 (0.013)
Some Coll+	0.010 (0.023)	0.019 (0.017)	0.025 (0.022)	0.024 (0.019)
Observations	5,820	5,820	5,820	5,820
<b>Control Mean</b>				
Overall	0.677	0.238	0.620	0.298
< Some Coll	0.658	0.215	0.619	0.286
Some Coll+	0.710	0.275	0.622	0.317

Outcomes come from the Follow-up Survey. Selective colleges are those with Barron's ratings of very competitive plus to most competitive. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses.

† Statistically significant at the 5% level after adjustment for multiple comparisons.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table D.3f. Effects of Assignment to V-SOURCE on College Enrollment Outcomes, by Parental Education**

	(1) Any College	(2) Any 4-Year	(3) Any Selective	(4) Any CSU	(5) Any UC
<b>Milestones</b>					
< Some Coll	0.015 (0.015)	0.022 (0.016)	0.016 (0.011)	-0.001 (0.015)	0.020 (0.012)
Some Coll+	-0.009 (0.022)	-0.032 (0.022)	0.013 (0.013)	-0.033 (0.018)	0.008 (0.014)
<b>Complete</b>					
< Some Coll	0.018 (0.016)	0.016 (0.018)	-0.002 (0.010)	0.006 (0.018)	0.007 (0.011)
Some Coll+	-0.010 (0.021)	0.001 (0.021)	0.004 (0.018)	0.004 (0.020)	0.000 (0.018)
Observations	6,459	6,459	6,459	6,459	6,459
<b>Control Mean</b>					
Overall	0.704	0.435	0.118	0.250	0.128
< Some Coll	0.666	0.401	0.104	0.243	0.115
Some Coll+	0.766	0.490	0.140	0.262	0.149

Data are from the National Student Clearinghouse (NSC). College enrollment reflects any enrollment in the fall (September 1 to December 31) following on-time high school graduation. Selective colleges are those with Barron's ratings of very competitive plus to most competitive. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses.

† Statistically significant at the 5% level after adjustment for multiple comparisons.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table D.3g. Effects of Assignment to V-SOURCE on College Persistence Outcomes, by Parental Education**

	(1) Any College	(2) Any 4-Year	(3) Any Selective	(4) Any CSU	(5) Any UC
<b>Milestones</b>					
< Some Coll	0.002 (0.016)	0.017 (0.016)	0.013 (0.011)	-0.001 (0.014)	0.017 (0.011)
Some Coll+	0.020 (0.024)	-0.016 (0.021)	0.010 (0.012)	-0.022 (0.017)	0.013 (0.012)
<b>Complete</b>					
< Some Coll	0.022 (0.018)	0.032 (0.018)	0.003 (0.010)	0.014 (0.016)	0.017 (0.011)
Some Coll+	0.018 (0.024)	0.007 (0.019)	0.004 (0.018)	0.004 (0.018)	0.000 (0.017)
Observations	6,459	6,459	6,459	6,459	6,459
<b>Control Mean</b>					
Overall	0.632	0.367	0.109	0.204	0.115
< Some Coll	0.596	0.333	0.095	0.196	0.102
Some Coll+	0.690	0.423	0.131	0.216	0.137

Data are from the National Student Clearinghouse (NSC). College enrollment reflects any enrollment in the fall (September 1 to December 31) following on-time high school graduation. Selective colleges are those with Barron's ratings of very competitive plus to most competitive. Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses.

† Statistically significant at the 5% level after adjustment for multiple comparisons.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

## **APPENDIX E. EXPLORATORY ANALYSIS OF HETEROGENEOUS TREATMENT EFFECTS**

In this appendix, we present heterogeneous treatment effect estimates by academic achievement, alternative sources of college access support, and students' tendency to be disorganized and procrastinate. We show results only for application, admissions, and enrollment outcomes. As noted in the text, we generally do not have enough power to draw strong conclusions about differential treatment effects, but the patterns of coefficients across outcomes and subgroups provide some insight into whether the program operated as expected. As in Appendix D, we report summary statistics by sub-group before presenting the treatment effect estimates.

### **Academic Achievement**

We use self-reported GPA from the Application Survey as our measure of academic achievement. Students were asked "If you had to apply to college today, what would your GPA be? Make your best guess if you're not sure." Self-reported GPA is likely subject to measurement error, either because students do not know their GPA or because it changed in relevant ways between when they reported it to us and when they applied to college. Still, self-reported GPA is highly predictive of whether and where students attend college and is also highly correlated with the GPA reported in California Student Aid Commission (CSAC) administrative data.<sup>3</sup> We bin the data and drop students with a missing GPA or GPA less than 2.0 (2.7 and 1 percent of the sample, respectively).

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<sup>3</sup> The CSAC measure is the GPA calculated for purposes of CalGrant eligibility (which is somewhat different from the GPA UC and CSU calculate for purposes of admission). We do not use the CSAC GPA because it is measured after random assignment and also missing for many students. Among students for whom we have both measures, the correlation is 0.72.

**Table E.1a. Characteristics of V-SOURCE Research Participants, by Self-Reported GPA**

	2.0-2.99	3.0-3.49	3.5+	Total
<b>Gender</b>				
Female	0.654	0.671	0.706	0.682
N	1555	2073	2769	6397
<b>Subsidized Lunch Status</b>				
Uses Lunch Tickets	0.528	0.531	0.540	0.534
N	1235	1792	2513	5540
<b>Race/Ethnicity and Language</b>				
Hispanic, Sp in Home	0.547	0.540	0.483	0.517
Hispanic, Oth Lang	0.273	0.241	0.213	0.237
White, NH	0.030	0.040	0.060	0.046
Black, NH	0.084	0.069	0.040	0.060
Asian/PI, NH	0.039	0.085	0.173	0.112
Other NH or Missing	0.027	0.026	0.030	0.028
N	1555	2073	2769	6397
<b>Parental Education</b>				
Missing/DK	0.042	0.030	0.024	0.030
Less than HS	0.434	0.392	0.367	0.392
High School (incl Vocational)	0.190	0.213	0.190	0.197
Some College	0.242	0.230	0.224	0.230
Four-Year College or More	0.092	0.135	0.195	0.150
N	1555	2073	2769	6397
<b>Self-Reported GPA</b>				
Less than 2.0	0.000	0.000	0.000	0.000
2 to 2.99	1.000	0.000	0.000	0.243
3 to 3.49	0.000	1.000	0.000	0.324
3.5+	0.000	0.000	1.000	0.433
N	1555	2073	2769	6397
<b>Educational Aspirations</b>				
Less than BA	0.090	0.038	0.016	0.040
BA	0.228	0.186	0.117	0.164
Masters	0.252	0.273	0.246	0.256
PhD, MD, JD, etc	0.430	0.503	0.621	0.541
N	1194	1743	2450	5387
<b>Immigration Status</b>				
US Born	0.880	0.854	0.808	0.839
US Born Parent	0.317	0.291	0.245	0.276
N	1259	1804	2526	5589

Students with missing GPA or GPA less than 2.0 are dropped from this analysis.

**Table E.1a (cont). Characteristics of V-SOURCE Research Participants, by Self-Reported GPA**

	2.0-2.99	3.0-3.49	3.5+	Total
<b>Self-Perceptions</b>				
Procrastinator/Disorganized	0.250	0.047	-0.167	-0.004
Hard Worker	-0.313	-0.069	0.256	0.023
Internal Locus of Control	-0.106	-0.006	0.072	0.007
N	1232	1779	2488	5499
<b>Others' Educational Expectations</b>				
Parents Expect <BA	0.199	0.145	0.126	0.148
Parents Expect BA	0.254	0.237	0.229	0.237
Parents Expect >BA	0.547	0.618	0.646	0.615
Tch/Cnsl Expect College (Index)	-0.248	-0.034	0.184	0.018
N	1158	1693	2397	5248
<b>People Will Help with Apps if Asked</b>				
Parent	0.429	0.440	0.425	0.431
Sibling	0.360	0.375	0.378	0.373
Teacher or Counselor	0.734	0.796	0.826	0.794
N	1540	2067	2763	6370
<b>Other College Access Support</b>				
Parent will Remind Turn in Apps	0.658	0.637	0.639	0.643
Parent will Make Sure Turn in Apps	0.670	0.690	0.677	0.680
School Support Index	-0.206	-0.000	0.155	0.017
N	1540	2067	2763	6370
<b>College Access Program Participation</b>				
Participated at Baseline	0.340	0.363	0.410	0.379
N	1269	1828	2564	5661

**Table E.1b. Effects of Assignment to V-SOURCE on Applications, Admissions, and Enrollment, by Self-Reported GPA**

	(1) Apply 4- Year	(2) Apply CSU	(3) Apply UC	(4) Accept 4- Year	(5) Accept CSU	(6) Accept UC	(7) Enroll 4- Year	(8) Enroll CSU	(9) Enroll UC
<b>Milestones</b>									
2.0-2.99	0.024 (0.026)	0.041 (0.024)	0.011 (0.020)	-0.004 (0.025)	0.013 (0.025)	-0.003 (0.010)	0.011 (0.020)	0.024 (0.019)	-0.004 (0.006)
3.0-3.49	0.041* (0.021)	0.039 (0.022)	0.039 (0.023)	0.015 (0.026)	0.020 (0.026)	0.031 (0.016)	-0.015 (0.026)	-0.025 (0.022)	0.020 (0.011)
3.5+	0.012 (0.011)	0.006 (0.014)	-0.010 (0.016)	-0.004 (0.013)	-0.006 (0.017)	-0.000 (0.019)	0.010 (0.021)	-0.016 (0.018)	0.024 (0.018)
<b>Complete</b>									
2.0-2.99	0.099** (0.030)	0.107** (0.034)	0.022 (0.024)	0.072* (0.036)	0.084* (0.035)	0.007 (0.014)	0.061* (0.030)	0.055 (0.029)	0.009 (0.009)
3.0-3.49	0.009 (0.020)	0.016 (0.023)	0.087*** (0.024)	0.013 (0.022)	0.016 (0.023)	0.033 (0.019)	-0.028 (0.022)	-0.034 (0.021)	0.002 (0.011)
3.5+	0.024* (0.012)	0.032* (0.016)	0.032 (0.018)	-0.004 (0.016)	0.007 (0.020)	0.007 (0.020)	0.011 (0.022)	0.003 (0.022)	0.012 (0.020)
Observations	5,791	5,791	5,791	5,791	5,791	5,791	5,791	5,791	5,791
<b>Control Mean</b>									
Overall	0.786	0.732	0.452	0.678	0.619	0.300	0.461	0.261	0.138
2.0-2.99	0.551	0.514	0.133	0.366	0.329	0.037	0.191	0.156	0.004
3.0-3.49	0.778	0.740	0.337	0.656	0.613	0.149	0.438	0.326	0.053
3.5+	0.912	0.837	0.695	0.853	0.771	0.538	0.613	0.270	0.265

Outcomes come from the Follow-up Survey & National Student Clearinghouse (NSC). Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses. We do not apply adjustments for multiple comparisons in this table because these are exploratory analyses.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

## **Alternative Sources of Support**

We examine heterogeneity for four measures of alternative sources of college access support. The first three come from students' responses to the following question: "Thinking of the people in your life, which of the following people will help you with college applications if you ask?" We created indicators for (1) parent will help, (2) brother or sister will help, and (3) teacher and/or school counselor will help.<sup>4</sup> We also created an indicator equal to one if a student indicated on the Baseline that s/he had ever participated in any of the following programs: Talent Search, Upward Bound, GEAR UP, AVID (Advancement in Individual Determination), or MESA (Mathematics, Engineering, Science Achievement). We measured participation in other college access programs on the Baseline Survey (rather than the Application), which explains the smaller sample sizes for those analyses.

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<sup>4</sup> The full set of options for these questions also included "Other Relative," "Family Friend," "Friend," and "Mentor (from a Program)." We could have combined these into a single measure of availability of alternative support overall, in the family, or at school, but we opted for the more-interpretable (and in the case of parental help, comparable to other studies) versions of these variables.

**Table E.2a. Characteristics of V-SOURCE Research Participants, by Parent Will Help with Applications if Asked**

	No parent will help	Parent will help	Total
<b>Gender</b>			
Female	0.698	0.668	0.685
N	3773	2838	6611
<b>Subsidized Lunch Status</b>			
Uses Lunch Tickets	0.565	0.501	0.537
N	3261	2443	5704
<b>Race/Ethnicity and Language</b>			
Hisp, Sp in Home	0.651	0.340	0.518
Hisp, Oth Lang	0.178	0.320	0.239
White, NH	0.020	0.080	0.046
Black, NH	0.030	0.100	0.060
Asian/PI, NH	0.104	0.118	0.110
Other NH or Missing	0.017	0.041	0.028
N	3773	2838	6611
<b>Parental Education</b>			
Missing/DK	0.039	0.020	0.031
Less than HS	0.521	0.223	0.393
High School (incl Vocational)	0.192	0.207	0.198
Some College	0.171	0.305	0.229
Four-Year College or More	0.077	0.245	0.149
N	3773	2838	6611
<b>Self-Reported GPA</b>			
Less than 2.0	0.012	0.007	0.010
2 to 2.99	0.240	0.239	0.239
3 to 3.49	0.315	0.329	0.321
3.5+	0.433	0.425	0.429
N	3671	2763	6434
<b>Educational Aspirations</b>			
Less than BA	0.038	0.041	0.040
BA	0.167	0.162	0.165
Masters	0.258	0.250	0.255
PhD, MD, JD, etc	0.536	0.546	0.541
N	3156	2393	5549
<b>Immigration Status</b>			
US Born	0.829	0.855	0.840
US Born Parent	0.159	0.433	0.277
N	3285	2471	5756

**Table E.2a (cont). Characteristics of V-SOURCE Research Participants, by Parent Will Help with Applications if Asked**

	No parent will help	Parent will help	Total
<b>Self-Perceptions</b>			
Procrastinator/Disorganized	0.055	-0.062	0.004
Hard Worker	-0.052	0.095	0.011
Internal Locus of Control	-0.081	0.106	-0.000
N	3223	2438	5661
<b>Others' Educational Expectations</b>			
Parents Expect <BA	0.177	0.117	0.150
Parents Expect BA	0.229	0.246	0.236
Parents Expect >BA	0.594	0.638	0.613
Tch/Cnsl Expect College (Index)	-0.018	0.050	0.012
N	3053	2351	5404
<b>People Will Help with Apps if Asked</b>			
Parent	0.000	1.000	0.429
Sibling	0.349	0.403	0.372
Teacher or Counselor	0.785	0.797	0.790
N	3773	2838	6611
<b>Other College Access Support</b>			
Parent will Remind Turn in Apps	0.447	0.898	0.641
Parent will Make Sure Turn in Apps	0.483	0.938	0.678
School Support Index	-0.025	0.051	0.008
N	3773	2838	6611
<b>College Access Program Participation</b>			
Participated at Baseline	0.395	0.355	0.378
N	3335	2496	5831

**Table E.2b. Effects of Assignment to V-SOURCE on Applications, Admissions, and Enrollment, by Parent Will Help with Applications if Asked**

	(1) Apply 4- Year	(2) Apply CSU	(3) Apply UC	(4) Accept 4- Year	(5) Accept CSU	(6) Accept UC	(7) Enroll 4- Year	(8) Enroll CSU	(9) Enroll UC
<b>Milestones</b>									
No parent will help	0.032* (0.014)	0.038* (0.015)	0.026 (0.016)	0.005 (0.014)	0.009 (0.017)	0.015 (0.013)	0.020 (0.020)	-0.010 (0.018)	0.027* (0.013)
Parent will help	0.017 (0.017)	0.005 (0.018)	-0.014 (0.018)	-0.006 (0.019)	-0.003 (0.021)	0.003 (0.014)	-0.026 (0.020)	-0.016 (0.019)	0.003 (0.012)
<b>Complete</b>									
No parent will help	0.045** (0.016)	0.065*** (0.018)	0.067*** (0.017)	0.024 (0.019)	0.033 (0.020)	0.018 (0.014)	-0.007 (0.021)	-0.013 (0.020)	0.014 (0.012)
Parent will help	0.020 (0.018)	0.009 (0.020)	0.015 (0.020)	0.008 (0.024)	0.016 (0.022)	0.006 (0.016)	0.022 (0.021)	0.020 (0.020)	-0.004 (0.016)
Observations	5,964	5,964	5,964	5,964	5,964	5,964	5,964	5,964	5,964
<b>Control Mean</b>									
Overall	0.780	0.728	0.447	0.673	0.617	0.296	0.459	0.261	0.137
No parent will help	0.800	0.749	0.468	0.700	0.650	0.329	0.469	0.271	0.146
Parent will help	0.752	0.699	0.417	0.637	0.571	0.250	0.445	0.248	0.124

Outcomes come from the Follow-up Survey & National Student Clearinghouse (NSC). Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses. We do not apply adjustments for multiple comparisons in this table because these are exploratory analyses.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table E.3a. Characteristics of V-SOURCE Research Participants, by Sibling Will Help with Applications if Asked**

	No sibling will help	Sibling will help	Total
<b>Gender</b>			
Female	0.694	0.671	0.685
N	4150	2461	6611
<b>Subsidized Lunch Status</b>			
Uses Lunch Tickets	0.540	0.533	0.537
N	3556	2148	5704
<b>Race/Ethnicity and Language</b>			
Hispanic, Sp in Home	0.513	0.525	0.518
Hispanic, Oth Lang	0.251	0.219	0.239
White, NH	0.047	0.044	0.046
Black, NH	0.058	0.063	0.060
Asian/PI, NH	0.103	0.122	0.110
Other NH or Missing	0.028	0.027	0.028
N	4150	2461	6611
<b>Parental Education</b>			
Missing/DK	0.030	0.032	0.031
Less than HS	0.390	0.398	0.393
High School (incl Vocational)	0.200	0.196	0.198
Some College	0.232	0.224	0.229
Four-Year College or More	0.148	0.150	0.149
N	4150	2461	6611
<b>Self-Reported GPA</b>			
Less than 2.0	0.010	0.010	0.010
2 to 2.99	0.244	0.231	0.239
3 to 3.49	0.320	0.323	0.321
3.5+	0.426	0.435	0.429
N	4035	2399	6434
<b>Educational Aspirations</b>			
Less than BA	0.043	0.034	0.040
BA	0.160	0.173	0.165
Masters	0.249	0.265	0.255
PhD, MD, JD, etc	0.548	0.529	0.541
N	3466	2083	5549
<b>Immigration Status</b>			
US Born	0.819	0.874	0.840
US Born Parent	0.300	0.238	0.277
N	3578	2178	5756

**Table E.3a (cont). Characteristics of V-SOURCE Research Participants, by Sibling Will Help with Applications if Asked**

	No sibling will help	Sibling will help	Total
<b>Self-Perceptions</b>			
Procrastinator/Disorganized	0.003	0.007	0.004
Hard Worker	0.021	-0.005	0.011
Internal Locus of Control	-0.027	0.044	-0.000
N	3548	2113	5661
<b>Others' Educational Expectations</b>			
Parents Expect <BA	0.163	0.130	0.150
Parents Expect BA	0.229	0.248	0.236
Parents Expect >BA	0.608	0.622	0.613
Tch/Cnsl Expect College (Index)	0.018	0.001	0.012
N	3359	2045	5404
<b>People Will Help with Apps if Asked</b>			
Parent	0.408	0.465	0.429
Sibling	0.000	1.000	0.372
Teacher or Counselor	0.792	0.788	0.790
N	4150	2461	6611
<b>Other College Access Support</b>			
Parent will Remind Turn in Apps	0.617	0.681	0.641
Parent will Make Sure Turn in Apps	0.654	0.719	0.678
School Support Index	0.009	0.005	0.008
N	4150	2461	6611
<b>College Access Program Participation</b>			
Participated at Baseline	0.380	0.374	0.378
N	3641	2190	5831

**Table E.3b. Effects of Assignment to V-SOURCE on Applications, Admissions, and Enrollment, by Sibling Will Help with Applications if Asked**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Apply 4- Year	Apply CSU	Apply UC	Accept 4- Year	Accept CSU	Accept UC	Enroll 4- Year	Enroll CSU	Enroll UC
<b>Milestones</b>									
No sibling will help	0.012 (0.012)	0.010 (0.014)	0.000 (0.014)	-0.014 (0.015)	-0.012 (0.017)	0.010 (0.012)	0.003 (0.015)	-0.027 (0.017)	0.033** (0.011)
Sibling will help	0.048** (0.015)	0.046** (0.017)	0.023 (0.019)	0.024 (0.019)	0.030 (0.021)	0.008 (0.016)	-0.005 (0.024)	0.012 (0.021)	-0.011 (0.016)
<b>Complete</b>									
No sibling will help	0.045** (0.014)	0.049* (0.019)	0.050** (0.018)	0.028 (0.017)	0.030 (0.019)	0.020 (0.016)	-0.003 (0.019)	-0.020 (0.019)	0.013 (0.010)
Sibling will help	0.017 (0.017)	0.027 (0.020)	0.034 (0.021)	-0.001 (0.019)	0.018 (0.022)	0.000 (0.019)	0.019 (0.023)	0.036 (0.021)	-0.008 (0.018)
Observations	5,964	5,964	5,964	5,964	5,964	5,964	5,964	5,964	5,964
<b>Control Mean</b>									
Overall	0.780	0.728	0.447	0.673	0.617	0.296	0.459	0.261	0.137
No sibling will help	0.782	0.730	0.443	0.674	0.617	0.292	0.451	0.269	0.122
Sibling will help	0.775	0.723	0.454	0.673	0.616	0.302	0.473	0.248	0.162

Outcomes come from the Follow-up Survey & National Student Clearinghouse (NSC). Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses. We do not apply adjustments for multiple comparisons in this table because these are exploratory analyses.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table E.4a. Characteristics of V-SOURCE Research Participants, by Teacher or Counselor Will Help with Applications if Asked**

	No Tch/Cns will help	Tch/Cns will help	Total
<b>Gender</b>			
Female	0.679	0.687	0.685
N	1387	5224	6611
<b>Subsidized Lunch Status</b>			
Uses Lunch Tickets	0.534	0.538	0.537
N	1173	4531	5704
<b>Race/Ethnicity and Language</b>			
Hispanic, Sp in Home	0.500	0.523	0.518
Hispanic, Oth Lang	0.282	0.228	0.239
White, NH	0.044	0.046	0.046
Black, NH	0.066	0.059	0.060
Asian/PI, NH	0.084	0.117	0.110
Other NH or Missing	0.025	0.028	0.028
N	1387	5224	6611
<b>Parental Education</b>			
Missing/DK	0.032	0.031	0.031
Less than HS	0.382	0.396	0.393
High School (incl Vocational)	0.198	0.199	0.198
Some College	0.242	0.225	0.229
Four-Year College or More	0.146	0.150	0.149
N	1387	5224	6611
<b>Self-Reported GPA</b>			
Less than 2.0	0.016	0.008	0.010
2 to 2.99	0.307	0.222	0.239
3 to 3.49	0.316	0.323	0.321
3.5+	0.361	0.447	0.429
N	1334	5100	6434
<b>Educational Aspirations</b>			
Less than BA	0.062	0.034	0.040
BA	0.196	0.157	0.165
Masters	0.248	0.256	0.255
PhD, MD, JD, etc	0.493	0.553	0.541
N	1140	4409	5549
<b>Immigration Status</b>			
US Born	0.856	0.836	0.840
US Born Parent	0.308	0.268	0.277
N	1199	4557	5756

**Table E.4a (cont). Characteristics of V-SOURCE Research Participants, by Teacher or Counselor Will Help with Applications if Asked**

	No Tch/Cns will help	Tch/Cns will help	Total
<b>Self-Perceptions</b>			
Procrastinator/Disorganized	0.081	-0.016	0.004
Hard Worker	-0.140	0.051	0.011
Internal Locus of Control	-0.103	0.027	-0.000
N	1177	4484	5661
<b>Others' Educational Expectations</b>			
Parents Expect <BA	0.153	0.150	0.150
Parents Expect BA	0.264	0.229	0.236
Parents Expect >BA	0.583	0.621	0.613
Tch/Cnsl Expect College (Index)	-0.355	0.106	0.012
N	1105	4299	5404
<b>People Will Help with Apps if Asked</b>			
Parent	0.415	0.433	0.429
Sibling	0.376	0.371	0.372
Teacher or Counselor	0.000	1.000	0.790
N	1387	5224	6611
<b>Other College Access Support</b>			
Parent will Remind Turn in Apps	0.606	0.650	0.641
Parent will Make Sure Turn in Apps	0.626	0.692	0.678
School Support Index	-0.977	0.269	0.008
N	1387	5224	6611
<b>College Access Program Participation</b>			
Participated at Baseline	0.327	0.391	0.378
N	1205	4626	5831

**Table E.4b. Effects of Assignment to V-SOURCE on Applications, Admissions, and Enrollment, by Teacher or Counselor Will Help with Applications if Asked**

	(1) Apply 4- Year	(2) Apply CSU	(3) Apply UC	(4) Accept 4- Year	(5) Accept CSU	(6) Accept UC	(7) Enroll 4- Year	(8) Enroll CSU	(9) Enroll UC
<b>Milestones</b>									
No Tch/Cns will help	0.070** (0.025)	0.055* (0.027)	0.034 (0.024)	0.049* (0.022)	0.046 (0.027)	0.005 (0.023)	0.004 (0.026)	-0.009 (0.025)	0.004 (0.018)
Tch/Cns will help	0.015 (0.011)	0.017 (0.012)	0.003 (0.011)	-0.011 (0.012)	-0.006 (0.014)	0.011 (0.011)	0.000 (0.014)	-0.013 (0.013)	0.020 (0.011)
<b>Complete</b>									
No Tch/Cns will help	0.096** (0.036)	0.098* (0.039)	0.070* (0.030)	0.079* (0.034)	0.084* (0.037)	0.002 (0.025)	0.022 (0.035)	0.037 (0.032)	-0.031 (0.019)
Tch/Cns will help	0.019 (0.010)	0.027* (0.013)	0.038** (0.014)	0.002 (0.014)	0.011 (0.015)	0.015 (0.012)	0.002 (0.017)	-0.008 (0.015)	0.015 (0.010)
Observations	5,964	5,964	5,964	5,964	5,964	5,964	5,964	5,964	5,964
<b>Control Mean</b>									
Overall	0.780	0.728	0.447	0.673	0.617	0.296	0.459	0.261	0.137
No Tch/Cns will help	0.663	0.617	0.335	0.536	0.490	0.214	0.376	0.225	0.103
Tch/Cns will help	0.809	0.755	0.474	0.707	0.648	0.316	0.480	0.270	0.145

Outcomes come from the Follow-up Survey & National Student Clearinghouse (NSC). Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses. We do not apply adjustments for multiple comparisons in this table because these are exploratory analyses.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table E.5a. Characteristics of V-SOURCE Research Participants, by Ever Participated in College Access Program**

	Didn't Participate	Did Participate	Total
<b>Gender</b>			
Female	0.683	0.714	0.695
N	3643	2212	5855
<b>Subsidized Lunch Status</b>			
Uses Lunch Tickets	0.549	0.516	0.537
N	3578	2149	5727
<b>Race/Ethnicity and Language</b>			
Hispanic, Sp in Home	0.504	0.551	0.522
Hispanic, Oth Lang	0.243	0.222	0.235
White, NH	0.054	0.036	0.047
Black, NH	0.051	0.066	0.057
Asian/PI, NH	0.120	0.104	0.114
Other NH or Missing	0.028	0.021	0.025
N	3643	2212	5855
<b>Parental Education</b>			
Missing/DK	0.028	0.022	0.026
Less than HS	0.381	0.418	0.395
High School (incl Vocational)	0.197	0.202	0.199
Some College	0.227	0.224	0.226
Four-Year College or More	0.167	0.134	0.154
N	3643	2212	5855
<b>Self-Reported GPA</b>			
Less than 2.0	0.010	0.006	0.009
2 to 2.99	0.236	0.200	0.222
3 to 3.49	0.328	0.307	0.320
3.5+	0.426	0.487	0.449
N	3550	2160	5710
<b>Educational Aspirations</b>			
Less than BA	0.045	0.032	0.040
BA	0.176	0.150	0.166
Masters	0.255	0.251	0.254
PhD, MD, JD, etc	0.523	0.567	0.540
N	3441	2106	5547
<b>Immigration Status</b>			
US Born	0.836	0.847	0.840
US Born Parent	0.280	0.270	0.276
N	3587	2170	5757

**Table E.5a (cont). Characteristics of V-SOURCE Research Participants, by Ever Participated in College Access Program**

	Didn't Participate	Did Participate	Total
<b>Self-Perceptions</b>			
Procrastinator/Disorganized	0.000	0.017	0.006
Hard Worker	-0.035	0.086	0.011
Internal Locus of Control	0.003	-0.008	-0.001
N	3530	2144	5674
<b>Others' Educational Expectations</b>			
Parents Expect <BA	0.149	0.154	0.151
Parents Expect BA	0.246	0.219	0.236
Parents Expect >BA	0.605	0.626	0.613
Tch/Cnsl Expect College (Index)	-0.029	0.079	0.012
N	3380	2046	5426
<b>People Will Help with Apps if Asked</b>			
Parent	0.444	0.402	0.428
Sibling	0.378	0.372	0.376
Teacher or Counselor	0.776	0.821	0.793
N	3628	2203	5831
<b>Other College Access Support</b>			
Parent will Remind Turn in Apps	0.658	0.616	0.642
Parent will Make Sure Turn in Apps	0.694	0.654	0.679
School Support Index	-0.126	0.235	0.010
N	3628	2203	5831
<b>College Access Program Participation</b>			
Participated at Baseline	0.000	1.000	0.378
N	3643	2212	5855

**Table E.5b. Effects of Assignment to V-SOURCE on Applications, Admissions, and Enrollment, by Ever Participated in College Access Program**

	(1) Apply 4- Year	(2) Apply CSU	(3) Apply UC	(4) Accept 4- Year	(5) Accept CSU	(6) Accept UC	(7) Enroll 4- Year	(8) Enroll CSU	(9) Enroll UC
<b>Milestones</b>									
Didn't Participate	0.032* (0.014)	0.024 (0.015)	0.001 (0.014)	0.000 (0.016)	-0.007 (0.018)	0.012 (0.013)	0.019 (0.016)	-0.005 (0.018)	0.014 (0.013)
Did Participate	0.007 (0.015)	0.013 (0.018)	0.027 (0.021)	0.013 (0.019)	0.023 (0.021)	0.015 (0.018)	-0.017 (0.022)	-0.026 (0.019)	0.035* (0.017)
<b>Complete</b>									
Didn't Participate	0.028 (0.018)	0.044* (0.019)	0.034 (0.018)	0.009 (0.020)	0.027 (0.020)	0.004 (0.013)	0.007 (0.019)	0.004 (0.018)	-0.010 (0.011)
Did Participate	0.047** (0.016)	0.033 (0.019)	0.057* (0.022)	0.035 (0.020)	0.023 (0.024)	0.025 (0.021)	-0.008 (0.023)	-0.017 (0.022)	0.031 (0.020)
Observations	5,443	5,443	5,443	5,443	5,443	5,443	5,443	5,443	5,443
<b>Control Mean</b>									
Overall	0.789	0.737	0.459	0.686	0.630	0.306	0.470	0.268	0.139
Didn't Participate	0.753	0.699	0.423	0.658	0.600	0.279	0.432	0.248	0.130
Did Participate	0.848	0.801	0.519	0.733	0.680	0.351	0.533	0.303	0.154

Outcomes come from the Follow-up Survey & National Student Clearinghouse (NSC). Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses. We do not apply adjustments for multiple comparisons in this table because these are exploratory analyses.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

## Disorganization and Procrastination

We constructed an index of students' tendency to be disorganized or procrastinate based on a series of questions from the Application and Baseline Surveys. See Appendix D for a list of items. For the analysis of heterogeneous treatment effects, we divide the index into terciles.

**Table E.6a. Characteristics of V-SOURCE Research Participants, by Procrastinator Index**

	Tercile 1	Tercile 2	Tercile 3	Total
<b>Gender</b>				
Female	0.746	0.680	0.620	0.684
N	2331	2250	2053	6634
<b>Subsidized Lunch Status</b>				
Uses Lunch Tickets	0.567	0.531	0.510	0.537
N	1994	1950	1783	5727
<b>Race/Ethnicity and Language</b>				
Hispanic, Sp in Home	0.532	0.521	0.497	0.518
Hispanic, Oth Lang	0.246	0.236	0.235	0.239
White, NH	0.051	0.046	0.038	0.046
Black, NH	0.064	0.058	0.057	0.060
Asian/PI, NH	0.079	0.116	0.138	0.110
Other NH or Missing	0.027	0.023	0.034	0.028
N	2331	2250	2053	6634
<b>Parental Education</b>				
Missing/DK	0.030	0.031	0.035	0.032
Less than HS	0.393	0.399	0.387	0.393
High School (incl Vocational)	0.208	0.196	0.189	0.198
Some College	0.232	0.216	0.239	0.229
Four-Year College or More	0.137	0.157	0.151	0.148
N	2331	2250	2053	6634
<b>Self-Reported GPA</b>				
Less than 2.0	0.005	0.005	0.021	0.010
2 to 2.99	0.176	0.245	0.310	0.240
3 to 3.49	0.309	0.326	0.329	0.321
3.5+	0.511	0.424	0.341	0.429
N	2279	2188	1991	6458
<b>Educational Aspirations</b>				
Less than BA	0.032	0.041	0.049	0.040
BA	0.135	0.169	0.196	0.165
Masters	0.241	0.251	0.275	0.255
PhD, MD, JD, etc	0.592	0.540	0.479	0.540
N	1965	1896	1707	5568
<b>Immigration Status</b>				
US Born	0.848	0.827	0.844	0.840
US Born Parent	0.275	0.273	0.280	0.276
N	2008	1965	1805	5778

**Table E.6a (cont). Characteristics of V-SOURCE Research Participants, by Procrastinator Index**

	Tercile 1	Tercile 2	Tercile 3	Total
<b>Self-Perceptions</b>				
Procrastinator/Disorganized	-1.009	-0.032	1.175	0.005
Hard Worker	0.579	-0.006	-0.604	0.011
Internal Locus of Control	0.439	-0.042	-0.446	-0.000
N	1982	1923	1779	5684
<b>Others' Educational Expectations</b>				
Parents Expect <BA	0.138	0.156	0.159	0.151
Parents Expect BA	0.212	0.239	0.260	0.236
Parents Expect >BA	0.649	0.605	0.581	0.613
Tch/Cnsl Expect College (Index)	0.152	-0.016	-0.120	0.011
N	1907	1856	1664	5427
<b>People Will Help with Apps if Asked</b>				
Parent	0.469	0.416	0.399	0.429
Sibling	0.371	0.375	0.372	0.372
Teacher or Counselor	0.805	0.791	0.773	0.791
N	2322	2241	2042	6605
<b>Other College Access Support</b>				
Parent will Remind Turn in Apps	0.677	0.638	0.602	0.641
Parent will Make Sure Turn in Apps	0.718	0.675	0.636	0.678
School Support Index	0.096	0.002	-0.084	0.008
N	2322	2241	2042	6605
<b>College Access Program Participation</b>				
Participated at Baseline	0.385	0.363	0.385	0.378
N	2042	1989	1822	5853

**Table E.6b. Effects of Assignment to V-SOURCE on Applications, Admissions, and Enrollment, by Procrastinator Index**

	(1) Apply 4- Year	(2) Apply CSU	(3) Apply UC	(4) Accept 4- Year	(5) Accept CSU	(6) Accept UC	(7) Enroll 4- Year	(8) Enroll CSU	(9) Enroll UC
<b>Milestones</b>									
Tercile 1	0.002 (0.016)	0.006 (0.017)	0.016 (0.019)	-0.004 (0.018)	0.003 (0.019)	0.004 (0.017)	-0.043 (0.024)	-0.034 (0.023)	0.018 (0.019)
Tercile 2	0.019 (0.018)	0.019 (0.020)	-0.015 (0.022)	-0.003 (0.020)	-0.001 (0.022)	0.009 (0.019)	0.020 (0.021)	-0.011 (0.021)	0.011 (0.013)
Tercile 3	0.055* (0.022)	0.048* (0.023)	0.025 (0.019)	0.007 (0.022)	0.010 (0.025)	0.016 (0.016)	0.025 (0.022)	0.010 (0.024)	0.021 (0.015)
<b>Complete</b>									
Tercile 1	0.009 (0.015)	0.031 (0.018)	0.035 (0.022)	-0.017 (0.022)	0.005 (0.024)	-0.013 (0.020)	-0.026 (0.024)	-0.002 (0.027)	-0.001 (0.017)
Tercile 2	0.033 (0.022)	0.031 (0.028)	0.035 (0.023)	0.026 (0.025)	0.024 (0.029)	0.031 (0.021)	-0.000 (0.027)	-0.015 (0.025)	0.015 (0.016)
Tercile 3	0.062** (0.021)	0.063* (0.025)	0.066** (0.021)	0.046* (0.021)	0.051* (0.024)	0.022 (0.019)	0.045 (0.027)	0.021 (0.024)	0.005 (0.020)
Observations	5,982	5,982	5,982	5,982	5,982	5,982	5,982	5,982	5,982
<b>Control Mean</b>									
Overall	0.780	0.727	0.446	0.673	0.616	0.295	0.459	0.261	0.136
Tercile 1	0.836	0.777	0.516	0.742	0.678	0.362	0.541	0.289	0.170
Tercile 2	0.777	0.734	0.444	0.665	0.618	0.270	0.444	0.271	0.127
Tercile 3	0.720	0.663	0.369	0.605	0.545	0.248	0.386	0.219	0.109

Outcomes come from the Follow-up Survey & National Student Clearinghouse (NSC). Regression includes controls for blocking group indicators, as well as linear, squared, and cubed terms for two GPA measures; for missing values, we impute the mean and include a missing value indicator. Standard errors, clustered on school, are reported in parentheses. We do not apply adjustments for multiple comparisons in this table because these are exploratory analyses.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$