Washington's College Bound Scholarship Program and its Effect on College Entry, Persistence, and Completion
Mark C. Long, Dan Goldhaber, and Trevor Gratz
<RH>Washington's College Bound Scholarship

Mark C. Long (corresponding Author)
Evans School of Public Policy and Governance
University of Washington
Seattle, WA 98195
marklong@uw.edu

Dan Goldhaber
American Institutes for Research and University of Washington
Center for Education Data & Research
Seattle, WA 98103
dgoldhaber@air.org

Trevor Gratz
Center for Education Data & Research
University of Washington
Seattle, WA 98103
gratzt@uw.edu

Long, M. C., Goldhaber, D., & Gratz, T. (2021). Washington's College Bound Scholarship Program and its Effect on College Entry, Persistence, and Completion. *Education Finance and Policy*, *16*(4), 690-715.

Acknowledgements: The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education through Grant R305A140380. We thank the Education Data and Research Center, the Washington Student Achievement Council, Independent Colleges of Washington, Public Centralized Higher Education Enrollment System and the National Student Clearinghouse for providing the data necessary to carry out this work. Jordan Rooklyn and Natsumi Naito provided excellent assistance and we appreciated comments on an earlier draft by Dani Fumia, Vivien Chen, and Micah Sanders. The findings and opinions expressed in this paper do not necessarily reflect those of the authors' institutions, funding organization, or the data providers. All errors are our own.

Abstract

Indiana, Oklahoma, and Washington have programs designed to address college enrollment and completion gaps by offering a promise of state-based college financial aid to low-income middle school students in exchange for making a pledge to do well in high school, be a good citizen, not be convicted of a felony, and apply for financial aid to college. Using a triple-difference specification, we find that Washington's College Bound Scholarship shifted enrollment from out-of-state to in-state colleges at which the scholarship could be used. While we find suggestive evidence that the program increased the likelihood of attending a postsecondary institution and attaining a bachelor's degree within five years of high school, we discuss why the program might be more successful if it did not require students to sign a pledge.

<A>1. Introduction

Despite significant increases in recent decades in the proportion of U.S. students enrolling in and graduating from college (Ryan and Bauman 2016), there remain substantial gaps in educational attainment between low- and high-income students (Ziol-Guest and Lee 2016; Duncan, Kalil, and Ziol-Guest 2017). States have attempted to close this gap through "early commitment pledge programs" that provide low-income students an early promise of funding for college in exchange for making a pledge to do well in high school and stay out of trouble. A central idea behind this early commitment is that the early promise of funds and the pledge designed to get students to think about college-going will set students on the right path. Yet there is surprisingly little rigorous evidence about whether these programs accomplish their central goal of helping to increase postsecondary educational attainment.

The College Bound Scholarship (CBS) program operating in Washington State since 2007 is an example of such programs. The legislative intent of the state in establishing the CBS is quite clear:

> *The legislature intends to inspire and encourage all Washington students to dream big by creating a guaranteed four-year tuition scholarship program for students from low-income families. The legislature finds that, too often, financial barriers prevent many of the brightest students from considering college as a future possibility. Often the cost of tuition coupled with the complexity of finding and applying for financial aid is enough to prevent a student from even applying to college. Many students become disconnected from the education system early on and may give up or drop out before graduation. It is the intent of the legislature to alert students early in their educational career to the*

options and opportunities available beyond high school (Washington State Legislature 2007a).[1]

We assess whether the CBS program met the above legislative intent. Using rich state administrative data, and a triple-difference specification, we estimate the causal effect of the program on college matriculation, persistence, and graduation. In particular, students are eligible to participate only if they are economically disadvantaged and they sign the CBS pledge in seventh or eighth grade (or ninth grade for the first cohort). Our triple-difference specification involves a comparison of changes across the period of policy implementation in the outcomes of (1) pledge-eligible students, (2) noneligible, non-economically disadvantaged students, and (3) students who were not eligible but were just slightly less economically disadvantaged than those who were eligible to sign the pledge.

Our estimates suggest positive but statistically insignificant impacts of the program on postsecondary enrollment and bachelor's degree attainment. We find stronger evidence that the program shifted enrollment from out-of-state institutions toward in-state institutions. Given the legislature's broader "long-term goal of a better trained and educated workforce" (Washington State Legislature 2007b), this result may be of value to the legislature, assuming that such students remain in-state after college (Sjoquist and Winters 2014). In the next section, we place the CBS program within the broader literature on place-based ("promise") programs that offer an early commitment of financial aid and pledge programs that require middle school students to make an affirmative statement to become program eligible.

[1] This intent is reinforced by the Washington Student Achievement Council (WSAC 2019a): *The College Bound Scholarship is designed to inspire and encourage Washington middle school students from low-income families to prepare for and pursue postsecondary education. The early commitment of state funding for tuition is intended to alleviate the financial barriers preventing students from considering college as a possibility.*

<A>2. Background

<B>Early Commitment Pledge Programs and College Outcomes

Place-based early commitment scholarship programs are designed to provide students in a given region with a clear, early commitment of financial aid for college, potentially changing students' perceptions about what might be possible for them after high school. The Kalamazoo Promise Program, which was announced in 2005, is one of the best known of such "promise" programs in the United States. State and locally funded early commitment programs have become common in recent decades (LeGower and Walsh 2017). The effects of these programs on college outcomes have been extensively studied (e.g., Carruthers and Fox 2016; Bartik, Hershbein, and Lachowska 2017; Page et al. 2018; Perna and Leigh 2018). Most studies find positive effects on in-state college matriculation and credit accumulation.

Early commitment pledge programs are similar to early commitment scholarship programs in that they offer aid for use at in-state colleges for students achieving specified academic thresholds.[2] But they differ from other promise programs in that they require students to sign an early commitment pledge in order to be eligible to receive a scholarship, and, unlike some commitment programs, are targeted toward disadvantaged (e.g., low-income) students. The pledge requirement is thought to be important in making students acutely aware of the availability of scholarship funds so as to change their expectations about college and create a

[2] These early college financial aid programs have a long history. The genesis of the first was a 1981 pledge by Eugene M. Lang to pay for the college education of sixty-one sixth graders, so long as they graduated high school and attended college (Indiana's 21st Century Scholars Program 2019). This relatively small intervention inspired the first statewide, early commitment pledge program: Indiana's 21st Century Scholars program. This program was established in 1990, and a similar program, the Oklahoma Promise, was initiated in 1996. CBS was established eleven years later in 2007. For a side-by-side comparison of these three programs, see Appendix table A.1 (available in a separate online appendix that can be accessed on *Education Finance and Policy*'s Web site at https://directmit.edu/edfp).

strong incentive to do well in high school and fulfill pledge requirements (typically, to do reasonably well academically and stay out of trouble).

Many prior studies of early commitment pledge programs (e.g., St. Johns, Hu, and Weber 2001; St. Johns, Musoba, and Simmons 2003; St. Johns et al. 2004; St. Johns et al. 2005; St. Johns et al. 2008; Mendoza, Mendez, and Malcolm 2009; Mendoza and Mendez 2012) find positive effects on college enrollment and persistence, but are limited in their ability to identify treatment effects because they lack necessary data to establish suitable comparison groups for pledge-eligible students. Studies by St. John and colleagues investigate the impact of Indiana's 21st Century Scholars Program, an early commitment pledge program similar to the CBS, but they lack data on cohorts of students prior to the implementation of the pledge program, and thus compare students who signed the pledge to students who may or may not have been eligible. The positive associations they find between completion of the pledge in Indiana and the likelihood that students enroll in both two- and four-year colleges are not terribly surprising given the likelihood that students who sign the pledge have unobserved attributes associated with a college-going orientation (as evidenced by signing the pledge).

Using instrumental variables approaches, Toutkoushian et al. (2015) attempt to address the potential problem of confounding unobservables by estimating models that adjust for self-selection into the program. They use as an instrument the distance between students' homes and centers that provide a range of college support services (such as tutoring, mentoring, and help in preparing for college) for pledge-signing students. They find positive effects of the Indiana program, but the results are also puzzling in that the estimated treatment effects were found to be much larger in the models that are intended to correct for sample selection. This suggests that the location of the support centers (the instrument) may be endogenous, which would make the

results suspect.[3] For example, if the centers are located near college campuses, it would not be surprising to see both higher rates of pledge signing and college enrollment near these centers, even with no effect of pledge-signing on enrollment.

Most closely related to our study are two reports by the Washington State Institute for Public Policy (WSIPP; Fumia, Bitney, and Hirsch 2018, 2019).[4] Utilizing a difference-in-differences estimator with propensity score weighting, these reports also provide evidence on the effects of Washington's CBS program on college-going, persistence, and graduation. They find that eligibility for the scholarship has little to no effect on these outcomes. However, Fumia, Bitney, and Hirsch (2019) do find suggestive evidence that the CBS increased enrollment at in-state, public, four-year institutions. As we describe below, we utilize similar data to Fumia, Bitney, and Hirsch, but have an additional year of college outcomes, which allows us to consider the effects of the CBS on college outcomes for an additional cohort of students observed two years after high school graduation. Moreover, as we elaborate in section 3, we utilize a different identification strategy for identifying the effects of the CBS program.[5]

[3] The authors test for this, and indeed find they could only reject the null hypothesis that the treatment variable was exogenous (at the 10 percent level) in ten of eighteen models they estimate.

[4] Their reports were commissioned by the Washington State Legislature and they were required to conduct "an evaluation of the college bound scholarship program" (2007a) that would "complement studies on the college bound scholarship program conducted at the University of Washington" (Second Substitute Senate Bill 5851, Chapter 244, Laws of 2015)—that is, to complement the research that we present in this paper.

[5] There are additional differences from Fumia, Bitney, and Hirsch (2019). Our data includes nearly the full sample of in-state private college enrollment, which Fumia et al. lack. Our analysis defines pseudo eligibility (defined in section 3) for pre-policy students differently (e.g., Fumia, Bitney, and Hirsch base pseudo eligibility on free or reduced-price lunch (FRPL) status in seventh or eighth grade, while we based it on FRPL status in eighth or ninth grade). Additionally, we handle missing data using multiple imputations while Fumia, Bitney, and Hirsch use listwise deletion, and we define cohorts using a student's first entrance into seventh or eighth grade compared with Fumia, Bitney, and Hirsch's using their last observation in seventh or eighth grade.

<B>Washington's College Bound Scholarship (CBS) Program

Modeled after similar programs in Oklahoma and Indiana,[6] CBS was created by the Washington legislature in 2007 and works as follows. Students may be eligible to sign the CBS pledge during seventh or eighth grade (or ninth grade for the first eligible cohort during 2008-09). However, in order to target the program to economically disadvantaged youth, not all students are eligible to sign the pledge. Students whose family received Temporary Assistance for Needy Families (TANF), whose family income was lower than 185 percent of the poverty line, who were enrolled in foster care, or were FRPL-eligible, qualified to sign the CBS pledge.[7]

If a student meets these eligibility requirements during seventh or eighth grade (or ninth grade for the first post-policy cohort) they are encouraged to sign a pledge to: (1) do well in middle and high school; (2) be a good citizen and not be convicted of a felony; and (3) apply for financial aid to college.[8, 9] If students satisfy these requirements and their family income remains below 65 percent of the state's median income during twelfth grade, they are promised a scholarship that covers tuition and some fees, and a small textbook allowance that are not covered by other state financial aid awards (WHECB 2012). Finally, "to receive the scholarship,

[6] For a side-by-side comparison of these three programs, see online Appendix table A.1.

[7] In 2008, the first cohort's eligibility year, 185 percent of the poverty line for a family of four was $39,220. A family income lower than 185 percent of the poverty line would also qualify the student for FRPL. One concern with using FRPL indicators for determining students' CBS eligibility is that the Community Eligibility Provision program allows schools where 40 percent of students are "categorically eligible" to apply and provide FRPL to all students at eligible schools. However, our period of study pre-dates the Community Eligibility Provision program, which began in Washington State in 2015 (Ruffini 2018).

[8] For a detailed list of the ways in which program administrators encourage program up-take, see Goldhaber et al. (2019).

[9] The pledge is as follows: "Yes, I am college bound! I pledge that I will:

- Do well in middle school and high school, and graduate with a cumulative high school grade point average of 2.0 or higher on a 4.0 scale.
- Be a good citizen in my school and my community and not commit a felony.
- Apply for financial aid by submitting the Free Application for Federal Student Aid (FAFSA) in a timely manner during my senior year of high school."

…students must (s)tart attending college within one year of graduating from high school" (WSAC 2019b).

Students can use these funds at two- or four-year Washington State higher education institutions. The funds may be applied to both public and private post-secondary colleges. However, for private institutions, the CBS guarantees financial coverage of up to the amount provided to students at a comparable public institution. For reference, the highest available award in 2014-15 was $12,404. Nevertheless, the CBS program is a last dollar scholarship program, meaning other financial aid is used before funds from the CBS kick in. As such, the typical award, while significant, is notably below this ceiling. For the first three cohorts of eligible students who attended a postsecondary institution the average annual award was $2,033 (WSAC 2017).

There is little empirical evidence that this program changed the college-going expectations of students and their academic preparation for college occurred for early cohorts eligible for the CBS. [10] Using a triple-difference-in-differences design, Goldhaber et al. (2020) investigate the effect of the CBS on pledge-eligible youth's cumulative high school grade point average (GPA), the likelihood of remaining in Washington public schools, the likelihood of graduating high school on time, and the likelihood of CBS-eligible youth being involved with the criminal justice system. The authors conclude that there is little evidence the CBS is altering the academic trajectories of CBS-eligible youth.[11] Given the null findings on high school outcomes,

[10] Unquestionably, students' education expectations are influenced by many factors; for instance, a parent's level of education, the desire for professional employment, socioeconomic status, parental assumptions of continued education, and teacher expectations (Rosenthal and Jacobson 1968; Sewell, Haller, and Ohlendorf 1970; Conklin and Dailey 1981; Goyette 2008). Early commitment programs are designed to be another important influence on students' academic expectations.

[11] Goldhaber et al. (2020) find somewhat surprisingly that the CBS reduced cumulative GPA for pledge-eligible twelfth graders. They speculate this may be evidence of pledge eligible youth taking more advanced coursework in preparation for college, which results in a corresponding reduction in GPA. However, due to data limitations, the authors are not able to fully investigate this hypothesis.

it is reasonable then to consider that the CBS effects may be more like other traditional financial aid programs that offer aid later in a student's academic career. But, as we noted above, there is no peer-reviewed published work on whether the CBS program is in fact affecting the college outcomes of students in Washington State.

<A>3. Data and Analytic Approach

<B>Data

We use data that are maintained by Washington State's Education Research and Data Center (ERDC).[12] These data include individual student-level K-12 records for all Washington State public schools. Data on students who have signed the CBS pledge are maintained by the Washington Student Achievement Council and are linked by ERDC to K-12 and postsecondary data. Our K-12 and postsecondary records cover two cohorts of students prior to the implementation of the CBS program, and four cohorts of students after the start of the program. As described above and in more detail in Goldhaber et al. (2019), participation in the program and receipt of a CBS college scholarship requires students to sign the CBS pledge while in middle school (or ninth grade for the first CBS-eligible cohort) and remain income eligible in twelfth grade. We define our cohorts based on when they entered eighth grade because this grade defines eligibility for all six cohorts: those students who were enrolled in eighth grade in 2005-06 and 2006-07 (cohorts 1 and 2) pre-dated the implementation of the CBS program and were

[12] ERDC requires us to note that the research presented here utilizes confidential data from the Education Research and Data Center, located within the Washington Office of Financial Management (OFM). ERDC uses data from the Office of the Superintendent of Instruction, that is, K-12 data, and links it to postsecondary outcomes to create a longitudinal data system. For more information about ERDC, see https://erdc.wa.gov/about-us-0. The views expressed here are those of the author(s) and do not necessarily represent those of the OFM or other data contributors.

thus ineligible, but students in eighth grade in 2007-08, 2008-09, 2009-10, and 2010-11 (cohorts 3-6) could have been eligible to participate given the other requirements described in section 2.

These six cohorts include 514,266 individual student records, but we remove students with missing identification (ID) codes, students with irreconcilable birth dates, and students who were not identified in a school in eighth grade. Our analytic dataset contains 489,161 students, including 168,031 in the pre-policy cohorts, and 321,130 in the post-policy cohorts.[13] Close to half of the students in the post-policy cohorts, 151,291, were clearly eligible for the CBS program as a result of being FRPL-eligible in eighth or ninth grade (cohort 3) or seventh or eighth grade (cohorts 4, 5, and 6). From now on, we refer to these students as "CBS-Eligible" students. Additionally, close to half of the students in the pre-policy cohorts (74,008) were FRPL-eligible in eighth or ninth grade, however, these youth were ineligible for the CBS scholarship because it had not yet been implemented. We refer to these students as "CBS Pseudo-Eligible" students.[14]

We received postsecondary data from ERDC that were compiled from four sources: Washington State's Public Centralized Higher Education Enrollment System (PCHEES), Washington State's State Board of Community and Technical Colleges (SBCTC) data system, data from the Independent Colleges of Washington (ICW), and data from the National Student Clearinghouse (NSC). We merged these data with information on college selectivity (Barron's Educational Series, Inc. 2008) based on Integrated Postsecondary Education Data System (IPEDS) ID codes.

[13] We note that for when data are not missing for these 25,000 students, they tend to be academically disadvantaged, for example, scoring, on average, -0.16 standard deviations below the mean on their seventh grade math tests. This may reduce the generalizability of the effects of the CBS for these students.

[14] We alternatively define CBS pseudo eligibility using FRPL status in grades 7 and 8 (consistent with post-policy Cohorts 4-6) and conduct our main models presented in section 3 using this alternate definition of CBS pseudo eligibility. We find qualitatively similar findings and results are available upon request.

The PCHEES data contain information on students' enrollment and graduations at in-state, four-year, public universities. Similarly, the SBCTC data system maintains enrollment and graduation data on all in-state public, two-year colleges. The ICW are a consortium of ten large, private, four-year universities in the state of Washington. Collectively, the ICW enroll over 40,000 students annually and, in any given year, account for 21 percent of all bachelor's and advanced degrees in the State of Washington (ICW 2019).[15] Lastly, the NSC data contains student-level information on both enrollment and graduation for all types of postsecondary institutions (i.e., public/private, two-year/four-year, and in-state/out-of-state).

The NSC data were obtained in order to conduct the legislatively mandated study of the CBS conducted by the Washington State Institute for Public Policy in conjunction with our own study (see footnote 4). Due to financial constraints, NSC data were obtained for a sample of the full set of students. WSIPP selected a random subsample of students in cohorts 1-4 from a pool of students with non-missing seventh grade characteristics.[16] This sample consists of 138,000, of which 5,833 had their records masked by the NSC either at the student's request or by their college's request. This brings the final sample of students with NSC data to 132,167.[17,]

From the above data sources, we construct measures of college enrollment, persistent enrollment, and graduation. We take the following approach to account for missing out-of-state data. First, we note that we have missing data on out-of-state enrollment, persistence, and

[15] ICW provided data on eight of their ten affiliate institutions. These eight universities represented 90.3 percent of ICW's 2017 fall undergraduate enrollments (NCES 2019).

[16] Seventh grade characteristics include sex, ethnicity, race, whether the student was a migrant, age, whether the student was an English language learner (an indicator for whether the student's primary and home language was English), disability status, whether the student received services for gifted students, and an indicator for academic assistance. Students also had to have non-missing eighth grade math and English test scores.

[17] Note that students identified in the random sample who were observed both entering and graduating from in-state, four-year, public institutions were not submitted to the random sample NSC query, as we observe their college outcomes in the PCHEES data. It is possible that some of these students transfer to out-of-state institutions and then transfer back to Washington institutions. We are unable to capture this subsample of students' out-of-state postsecondary enrollments.

graduation outcomes for 351,161 students who are not in our sample submitted to the NSC. For outcomes constructed only from out-of-state data, we impute these out-of-state outcome variables for these 351,161 students based on the 132,167 we observe. We use chained multiple imputations models and create ten imputed datasets for these outcomes. After imputing these values, we are able to construct our composite college outcomes measures (e.g., any college enrollment), from our non-imputed in-state outcomes and the out-of-state outcomes from the 10 imputed datasets (van Buuren, Boshuizen, and Knook 1999). We evaluate impacts by combining results from these ten datasets following Rubin (1987). This process also fills in values for missing covariates, including those shown in table 2. More information about the data and imputation process is included in the online Appendix.

On-time-enrollment is defined as postsecondary enrollment within one year of a student's expected "on-time" high school graduation year.[18] To construct this measure, we exclude college/high school dual enrollment, (i.e., we compute our on-time-enrollment measures using data on college enrollment occurring after high school). Furthermore, for our in-state public enrollment outcomes, we do not include enrollment data from students who were only enrolled in basic, developmental, or remedial courses. Lastly, for our in-state public enrollment outcomes, we include only those students enrolled in a bachelor's or an associate's degree program.

In addition to any college enrollment, we construct measures of enrollment in in-state, out-of-state, two-year, four-year, in-state four-year, out-of-state four-year, and very competitive four-year postsecondary institutions, where "very competitive" is defined as any college whose selectivity is rated as "very competitive" or higher by Barron's data.

[18] Expected on-time high school graduation dates were determined from the cohort to which a student belongs, assuming normal grade progression.

We create indicators of whether the student has been persistently enrolled in a postsecondary institution in each of the t academic years after on-time high school graduation, where t is set equal to 2, 3, 4, and 5. Additionally, we set this indicator equal to 1 if the student earned a bachelor's degree during or before year t. Thus, for example, this indicator for persistent enrollment through t=5 would be equal to 1 if either the student were enrolled in any postsecondary institution in each of the years 1, 2, 3, 4, and 5 after high school or had earned a bachelor's degree during any of these years.

For our postsecondary degree attainment measures, we construct four measures: graduating with an associate's degree within two and three years of a student's on-time high school graduation, and graduating with a bachelor's degree within four and five years of a student's on-time high school graduation.

For our triple-difference models (described later in this section), we compare the experiences of CBS-Eligible students to a slightly broader group of "Focal" students, which includes both CBS-Eligible students and students whom we call "CBS Border-Eligible". CBS Border-Eligible students were eligible for FRPL in grades just before or just after, but *not* during the grades used to determine CBS eligibility (or CBS Pseudo-Eligibility). These students are, for the purposes of determining CBS-Eligibility, economically disadvantaged in the wrong grades to be eligible. For instance, for students in cohort 3 (the first post-policy cohort), a CBS Border-Eligible student was either FRPL-eligible in seventh grade, tenth grade, or both seventh and tenth grades, but not in eighth or ninth grade. Being FRPL eligible in eighth or ninth grade would have made them eligible for the CBS. These definitions are graphically depicted by figure 1.[19]

[19] Students may be income eligible for CBS and yet do not receive benefits from the Supplemental Nutrition Assistance Program (SNAP), TANF, the Food Distribution Program on Indian Reservations (FDPIR), or FRPL. (Washington State began direct certification of children in TANF households as eligible for free meals in 2003-

Table 1 provides descriptive statistics for student outcomes. We see sizable increases in college enrollment of CBS-Eligible youth during the first year after high school, rising from 31.5 percent pre-policy to 36.5 percent post-policy. Our analytic methods will seek to establish whether this rise should be attributed to the effect of the CBS policy versus secular events that would have increased enrollment of CBS-Eligible students in the absence of the policy. Among youth in the pre-policy cohorts, CBS Pseudo-Eligible students were substantially less likely to attend a postsecondary institution immediately after high school than ineligible students (31.5 percent versus 61.1 percent). There were also substantial gaps in attending a very competitive four-year college after high school (4.5 percent versus 18.3 percent), persisting to the fifth year after high school (10.9 percent versus 31.5 percent), and attaining a bachelor's degree within five years (6.7 percent versus 24.5 percent).

As shown in the sixth column of table 1, during the pre-policy period, CBS Border-Eligible students were also much less likely to enroll in college, persist, and graduate than the

---

04 (Neuberger 2006) and, as of 2007-08, 76 percent of Washington's children in SNAP households were directly certified for free school meals (Ranalli et al. 2009). By 2008-09, all school districts in the United States were required by the 2004 Child Nutrition and WIC Reauthorization Act to directly certify recipients of SNAP and FDPIR as eligible for free meals under the National School Lunch Program. Thus, all TANF and nearly all SNAP and FDPIR recipients should be coded as a FRPL-eligible in our administrative data.)

These income-only-eligible students are missed by our existing administrative data. Our definition of "Eligible" misses approximately 13.4 percent of eligible students. (This calculation is based on our analysis of 3,245 youth aged 12-14 in families included in the first three waves of the 2008 Survey of Income and Program Participation [SIPP]. If we restrict the analysis to Washington youth [only 93 observations], we find a comparable rate of youth eligible for CBS based solely on family income (17.7 percent), which is not significantly different than the full sample given the small sample size. FDPIR recipients are directly certified as eligible for free lunches, but SIPP does not collect data on FDPIR participation. Since we capture these youth as FRPL-eligible from school administrative data, our estimate of the fraction that we miss, 13.4 percent, is an upper-bound estimate. Using data in Usher, Shanklin, and Wildfire (1990) and Snyder and Dillow (2012), we estimate that 0.05 [0.10] percent of U.S. [Washington] eighth grade students participate in FDPIR.)

These income-only-eligible students are also missed in the CBS Border-Eligible student group, our comparison group, and thus unlikely to bias our estimates.

Note that 10.7 percent of post-policy CBS-Border-Eligible students submitted a CBS pledge in middle school. Some of these students may be in the group of income-only-eligible students while others may be students who were ineligible but signed the pledge anyway. Assuming that some of these students would subsequently receive the CBS funds in college (or perceived that they would receive the funds) might lead to a treatment effect in our "control" group and thus bias our results downward.

average ineligible student. Based on their low rates of collegiate success, Border-Eligible students were almost as disadvantaged as CBS-Eligible students and thus form a reasonable counterfactual. However, we should add a note of caution in this assertion. Recall that Border-Eligible students are eligible for FRPL in one or two grades during early high school and middle school. However, they are also *ineligible* for FRPL in at least two other grades between middle school and early high school and thus are not consistently enrolled in FRPL. Their level of economic disadvantage appears to be transitory. In light of this, the group of Pseudo-Eligible/Eligible students are slightly more economically disadvantaged than Border-Eligible students, because this group consists of both students who were eligible for FRPL for one or two of the right grades (right for CBS eligibility) and those students who were persistently eligible for FRPL.

Table 2 shows descriptive statistics for student characteristics that are used as control variables in our regressions. Eligible students are far more likely than ineligible students to be migrants, homeless, from a household where English is not the primary language, Hispanic or African American, and from Eastern Washington. Eligible students have lower seventh grade test scores but these disparities narrowed somewhat, with the reading test score disparity narrowing from -0.68 standard deviations (s.d.) pre-policy to -0.63 s.d. post-policy.

<B>Analytic Approach

Our beginning analytic strategy is to utilize a difference-in-differences (henceforth, "DD") analysis to compare differences in outcomes of those who meet the CBS eligibility requirements in cohorts before (cohorts 1 and 2, i.e., Pseudo-Eligible students) and after (cohorts 3, 4, 5, and 6, i.e., Eligible students) the introduction of the implementation of the CBS program (the first

difference), and compare this to cross-cohort differences in outcomes for students who do not meet the requirements (the second difference). By comparing eligible and ineligible students in our DD approach, rather than CBS pledge signers, our models are designed within an Intent-to-Treat (ITT) framework. This DD analysis is expressed in equation 1:

$$Y_{imt} = \beta_m + \beta_1 CBS_{Eligible_i} \times Post_t + \beta_2 Post_t + \beta_3 CBS_{Eligible_i} + \beta_4 FRPL_i \quad (1)$$
$$+\beta_5 X_i + \varepsilon_{imt}.$$

Y_{imt} is the outcome for student i attending middle school m in cohort *t.* β_m are middle school fixed effects based on the student's enrollment during the fall of eighth grade. $Post_t$ is an indicator that equals one if the student is in post-policy cohorts 3, 4, 5, or 6. $CBS\_Eligible_i$ is an indicator for being Eligible (or Pseudo-Eligible) for the CBS program as described above. $FRPL_i$ is a vector containing the full set of possible patterns of FRPL eligibility during grades 6, 7, 8, 9, and 10 (i.e., just sixth, just seventh, just eighth, just ninth, just tenth, sixth and seventh, sixth and eighth…, and eligibility in all five grades). X_i is a vector of individual student characteristics as listed in table 2. ε_{imt} is the error term.[20, 21]

We include eighth grade middle school effects to account for unobserved middle school factors that might influence both the identification of student eligibility for the CBS program and a student's academic trajectory.[22] The inclusion of $FRPL_i$ as a set of control variables will

[20] For all models, we use a linear probability model. Using a linear probability model is preferred in this context (over a logit or probit specification) given the fact that the central part of equation 1, reflected in the first four terms, is essentially a comparison of conditional means.
[21] For statistical inference, we use robust standard errors that are clustered at the middle school level.
[22] See Goldhaber et al. (2019) for more on the factors that might influence whether students sign up for the CBS program. School culture is important in influencing student outcomes. A number of studies, for instance, find that the high schools play an important role in influencing graduation (Dobbie and Fryer 2009), and in explaining both the quality of the college in which postsecondary students enroll (Darolia and Koedel 2017) and performance in college (Conger, Long, and Iatarola 2009; Fletcher and Tienda 2010; Black et al. 2015).

capture the pattern of the student's disadvantage which is likely to have strong effects on student outcomes (Michelmore and Dynarski, 2017).[23]

The key policy variable upon which we focus is $CBS\_Eligible_i \times Post_t$. As with all DD analyses, the internal validity of the estimate as revealing the true causal effect of the policy relies on the parallel trends assumption. The identifying assumption for our DD design is that changes in outcomes across cohorts for those who were ineligible for the CBS (including both Ineligible and Border-Eligible students), which is identified by the second term of equation 1 ($\beta_2 Post_t$), are a reasonable proxy for changes in outcomes that would have been observed for the CBS-Eligible population in the absence of the program. For this counterfactual assumption to be valid there must be no factors that influence student outcomes that shift concurrently with the implementation of the CBS program and that differentially affect students who do or do not meet the eligibility requirements.

One concern with this DD identification strategy is that the unemployment rate in Washington had been falling during the period when these students would be making college enrollment decisions (from 10.2 percent in September 2009, to 9.8 percent in 2010, 9.2 percent in 2011, 7.8 percent in 2012, 6.9 percent in 2013, and 6.0 percent in 2014).[24] Moreover, federal Pell Grants for low-income students were increased during the Great Recession (which occurred December 2007 until June 2009), making it reasonable to believe that this improving labor market and shifting financial aid environment might differentially affect the college enrollment prospects of traditionally disadvantaged youth (Barr and Turner 2013). Potentially offsetting any

[23] Given the inclusion of the $FRPL_i$ vector, the coefficient on $CBS\_Eligible_i$ is barely identified and is based on the shift in grades during which students in Cohorts 3, 4, 5, and 6 were able to sign up for CBS (see figure 1). As such, the coefficient on $CBS\_Eligible_i$ is not particularly interesting and is omitted in the subsequent tables 3 through 5, which show estimated parameters.

[24] Seasonally adjusted data retrieved on 26 June 2019 from the Bureau of Labor Statistics, Local Area Unemployment Statistics, https://www.bls.gov/lau/data.htm.

positive effect of the improving economy, state funding for higher education fell dramatically during this same period, falling 25.5 percent between the state's 2007-09 and 2011-13 biennium budgets, and these changes are likely to have disproportionate negative impacts on the enrollment decisions of low-income students (WHECB 2012).

Finally, we note that the first post-policy cohort entered eighth grade in 2007 at the beginning of the Great Recession. The concern here is that FRPL-eligibility is a relatively blunt measure of poverty, and the Great Recession could have lowered family income in ways that are not well reflected by this poverty measure, therefore changing the composition of various comparison groups. Some students might just slip below the income threshold to become CBS eligible who, in the absence of the Great Recession, would not have been. We have no particular reason to believe the Great Recession would cause differential compositional effects across the different comparison groups (see the difference-in-differences-in-differences [DDD] discussion below), but to address this concern, we include in X_i the county unemployment rate by cohort and grade as an additional control, as there is evidence that the impact of the Great Recession varied significantly across regions (e.g., counties with large populations of historically disadvantaged racial groups experienced disproportionate increases in unemployment; Thiede and Monnat 2016).

To further capture these potential secular trends, we use a DDD specification. This specification tests whether CBS-Eligible student gains are substantially different from the

broader set of Focal students.[25] This DDD specification is shown below, where the key policy parameter is again β_1.[26]

$$Y_{imt} = \beta_m + \beta_1 CBS\_Eligible_i \times Focal_i \times Post_t + \beta_2 Focal_i \times Post_t + \beta_3 Post_t + \beta_4 CBS\_Eligible_i + \beta_5 Focal_i + \beta_6 FRPL_i + \beta_7 X_i + \varepsilon_{imt}. \quad (2)$$

The identifying assumption for our triple-difference design is that changes in outcomes across cohorts of Border-Eligible students are a reasonable proxy for changes in outcomes that would have been observed for the CBS-Eligible population in the absence of the program.[27]

The main threat to the validity of the DDD specification is the possibility that Border-Eligible students respond differently than CBS-Eligible students to secular influences across time. As noted previously, by definition, students who are Border-Eligible are not chronically FRPL-eligible (because we know they are not eligible in the CBS program-qualifying grades). Hence, the Border-Eligible students are slightly less disadvantaged than the CBS-Eligible/Pseudo-Eligible students. The threat to validity in using this DDD specification to capture the policy effect is that poorer students may respond differently to secular time trends than students who are slightly less poor.

To assess the possibility that the college entry, persistence, and completion rates were trending differently for eligible, ineligible, and Border-Eligible students during the pre-policy

[25] This specification was motivated by the considerable intertemporal volatility in Michigan students' FRPL status found by Michelmore and Dynarski (2016). We find this is also true in Washington State; for instance, 16% of students who are FRPL eligible at least once between grades 6 and 9 were also ineligible in at least one of these grades.

[26] Note that this specification does not include a term for $CBS\_Eligible_i \times Post_t$ as it would be perfectly collinear with $Focal_i \times Post_t$.

[27] A cruder version of this DDD specification that is *not conditioned* on student characteristics and middle school fixed effects can be obtained by computing the following differences in outcomes based on the means shown in table 1: (column 3 - column 2) – (column 7 - column 6). Across outcomes, the unconditional and conditional estimates have a correlation of 0.93. However, the unconditional results tend to be larger in absolute value, suggesting that changes in student characteristics and/or changes in middle school attendance are important to changes in outcomes, and thus they need to be controlled (as is done in equation 2).

period, which would yield biased results if these differential trends persisted into the post-policy period, we apply our DDD specification to pre-policy students in cohorts 1 and 2, and evaluate the "impacts" of a pseudo-policy that we impose on cohort 2. In tables that correspond to those shown subsequently (i.e., tables 3, 4, and 5), we find no significant impacts of such a pseudo-policy.[28] These non-significant findings bolster our confidence that any significant results using our DDD specification applied to the actual policy reflects policy impacts rather than continuation of differential trends.

An additional possible threat to validity would be if the policy induced students—who would otherwise be included in the Border-Eligible group—to shift into the eligible group (i.e., FRPL in the correct grades).[29] Indeed, we find that the ratio of eligible students to the combination of eligible and Border-Eligible students slightly increased from 91.0 percent pre-policy to 92.2 percent post-policy. If this change is due to endogenous behavior, and assuming that those students who make such a shift are doing so because they are likely to attend college and want to access the CBS funds, then it would lead to upward bias in our estimates of the CBS program effects because the "treatment" group would be increasingly composed of college-interested students. On the other hand, note that a goal of the CBS is to change the college-going culture in schools. If this occurs and the benefits of this change spill over to students who are ineligible to receive the CBS, then our estimates may be downwardly biased.

Before we discuss the effects, we remind the reader that our method yields ITT estimates. As shown in Goldhaber et al. (2019), only 39 percent of students who are clearly eligible to sign up for the pledge did so in the first three post-policy cohorts. To obtain the effects of the

[28] These results are available from the authors upon request.
[29] Note that there is no reason to expect such an endogenous shift as actual eligibility is determined based on FRPL status *or* being income eligible for FPRL.

treatment on the treated (TOT) students (i.e., the estimated effect of the CBS on pledge signers), would entail multiplying our ITT point estimates by roughly two-and-a-half (i.e., 1/0.39).

One might be concerned that the ITT design would not find program effects if there were too few eligible students meeting the income, academic, and pledge requirements. We note that if this is the case, then the program's lack of effect is indeed the result of program design. For example, Harris et al. (2018, p.2) conclude that "performance requirements greatly reduced the number of students who could plausibly receive the funds" associated with The Degree Project in Milwaukee Public Schools and thus limited "both the effectiveness and equity of [this] financial aid". To evaluate this possible mechanism for small effects of CBS, note that we estimate that 46.2 percent of pledge signers who applied for the scholarship should have been denied funds by the state, mostly due to having GPAs below 2.0 (30.5 percent of pledge signers who applied for the scholarship), not having completed a FAFSA (38.0 percent of pledge signers who applied for the scholarship), or both. Very few students are likely to have been rejected due to felony commission because it is based on the student's self-report to the state and given the low rate of documented incarceration of pledge signers (e.g., 0.2 percent incarcerated in state prisons during or shortly after high school, Goldhaber et al. 2020).

<A>4. Results

<B>Main Results

Table 3 shows the estimated effects of the CBS on postsecondary enrollment during the first years after the student should have graduated from high school given normal progression. The first column of this table shows the estimates for the effects on enrollment in any postsecondary institution and clearly shows the advantage of our preferred triple-difference specification. As

shown in panel A, using the DD specification, we estimate that the CBS raised enrollment in any postsecondary institution during the first post-high school year by 1.7 percentage points (as shown by the bolded row). However, as shown in panel B, this apparent increase is likely the result of a broader secular shift that improved the postsecondary enrollment of low-income youth; focal students' likelihood of enrollment increased 1.7 percentage points while the additional gain for eligible youth (0.1 percentage points) is statistically insignificant. We can reject an effect larger than 1.9 percentage points as this is the upper-end of a two-tailed 95 percent confidence interval around this point estimate. Thus, we conclude that there is no strong evidence that the CBS raised postsecondary enrollment during this first year after high school.[30]

However, the subsequent columns of table 3 suggest the CBS caused a shift in where that initial postsecondary enrollment took place. Focusing on the triple-difference results (panel B), we find an increase in in-state postsecondary enrollment of 1.4 percentage points (p-value = 0.11) and a corresponding decrease in out-of-state postsecondary enrollment of 1.4 percentage points (p-value = 0.04). This is a large effect—only 4.9 percent of CBS Pseudo-Eligible students attended an out-of-state postsecondary institution—thus our results suggest a nearly 30 percent drop in this rate (i.e., -1.4/4.9). This shift appears to be mostly due to a shift in enrollment in four-year institutions. We estimate that the CBS caused an increase in in-state four-year postsecondary enrollment by 1.5 percentage points (p-value = 0.02) and a decrease in out-of-state four-year postsecondary enrollment of 0.8 percentage points (p-value = 0.23). We find an insignificant effect on the likelihood that the student attends a very competitive four-year

[30] This secular trend in Washington has also been experienced nationally. Among U.S. high school graduates, students with family incomes in the bottom 20 percent have seen their college enrollment percentages increase steadily from 2011 (the first postsecondary year for cohort 1) at 53.5 percent to 65.4 percent in 2016 (the first post-secondary year for Cohort 6). Students in the top 80 percent have not seen a rise in their enrollment rates: in 2011 it was 70.3 percent and in 2016 it was 69.4 percent (Snyder, de Brey, and Dillow 2019).

institution. Although not statistically significant, the results suggest a shift from two-year institutions (down 0.5 percentage points) to four-year institutions (up 0.7 percentage points).

Table 4 repeats the analysis, but now estimates the effects on enrollment during any point within the first five years after on-time high school graduation. The triple-difference results are generally insignificant. Focusing on panel B, the strongest results suggest a 1.6 percentage point increase in the likelihood of attending any postsecondary institution (p-value = 0.21), a 1.9 percentage point increase in the likelihood of attending a two-year postsecondary institution (p-value = 0.10), and a 2.2 percentage point increase in the likelihood of attending an in-state postsecondary institution (p-value = 0.07) during these five years. As with the analysis of impacts within one year of high school (table 3), we again have suggestive evidence of a shift away from out-of-state institutions within five years of high school (down 0.6 percentage points), however, given the smaller sample sizes used in the table 4 analysis, this estimate is not nearly significant (p-value = 0.56).

Table 5 presents the estimated effects on persistent enrollment and associate's and bachelor's degree attainment. Again, the triple difference results in panel B are generally insignificant. We find some evidence that is consistent with the findings in table 3 that suggest a shift in *initial* postsecondary enrollment from two-year institutions to four-year institutions—in table 5, we estimate a slight decrease in the likelihood of attaining an associate's degree within two years (-0.8 percentage points, p-value = 0.06) and a slight increase in the likelihood of attaining a bachelor's degree within five years (+0.7 percentage points, p-value = 0.36). Given the baseline rate of attaining a bachelor's degree within five years for CBS Pseudo-Eligible

students, which was just 8.1 percent, our point estimate suggests a 9 percent increase in this rate (i.e., 0.7/8.1).[31]

<B>Robustness Checks

We conducted three robustness checks whose results are shown in online Appendix table A.2. Broadly speaking the results are robust to changes in the sample.

For the first robustness check, we repeat the triple-difference specification but we restrict the analysis to the 416,975 students who were enrolled in twelfth grade in Washington public schools. Goldhaber et al. (2020) found that the CBS caused a reduction in the likelihood of a student attending a Washington public school in tenth grade by 0.9 percentage points (p-value = 0.07) and lowered the likelihood of a student attending a Washington public school in twelfth grade, conditional on tenth grade attendance, by 0.8 percentage points (p-value = 0.18). The authors speculate that failure to sign the pledge in middle school "may create a discouragement effect for these students during high school as they may become aware of their ineligibility to receive this source of need-based financial aid" (p. 21).

The results using this restricted sample are similar in direction but are modestly more positive. Again, these results show a strong and significant shift from out-of-state to in-state institutions and, while not statistically significant, the results suggest a modest increase in any postsecondary enrollment (up 0.7 [2.0] percentage points within one [five] years of high school). Further, we find significant increases in the likelihood of attending a two-year institution and an

[31] To investigate whether the impacts of the policy were increasing or decreasing in magnitude during the first four years of implementation, we modified equations 1 and 2 by replacing $Post_t$ with a set of indicators for $Cohort3_t$, $Cohort4_t$, $Cohort5_t$, and $Cohort6_t$, and added interactions of these variables with $CBS\_Eligible_i$ and $Border\_Eligible_i$. Using these modified specifications, we did not find any clearly evident pattern of change in the impacts.

in-state institution within five years of high school (up 2.3 and 2.8 percentage points, respectively), which are modestly larger than the main results for all students. Although speculative, these results suggest the program might have had a more positive effect if it had not modestly lessened the likelihood of remaining enrolled in Washington public schools through twelfth grade.

Second, we reestimated our DDD specification using only students with non-missing NSC data. As with our main results, we find a significant increase in the likelihood of enrolling in an in-state four-year postsecondary institution in the first year after high school (up 1.4 percentage points) that appears to be a shift away from out-of-state postsecondary institutions (down 1.4 percentage points). For this restricted sample, unlike the main results, we do not find evidence of a significant change in the likelihood of attending a two-year postsecondary institution or an in-state postsecondary institution within five years of high school. Rather, we find a significant decrease in the likelihood of attending an out-of-state postsecondary institution (down 1.9 percentage points). As with the main results, we find a decreased likelihood of earning an associate's degree (down 2.2 [1.5] percentage points two [three] years after high school). We find no significant effects on persistence nor bachelor's degree attainment.

Note that attendance at in-state institutions is not imputed given the nearly complete coverage of in-state enrollment from state administrative data. NSC data are only used as a supplement to these data rather than a substitute. Further, recall that NSC data are available for a random sample of students with non-missing seventh grade characteristics, thus producing a nonrandom sample of students. Any change in results for the estimated effects on in-state enrollment between the full sample and the sample with NSC data is likely due to the NSC data

sample being nonrandom and generally reflective of students with more stability. For example, this nonrandom sample of students has modestly higher eighth grade test scores (0.034 s.d.).

Third, we applied our DD specification to students whose FRPL status changed between sixth and tenth grades. For this restricted sample, we again find a significant increase in the likelihood of enrolling in an in-state, four-year postsecondary institution in the first year after high school (up 1.4 percentage points). Yet the source of this gain appears to be a shift away from two-year institutions (down 1.4 percentage points) more so than a shift away from out-of-state institutions (insignificantly down 0.5 percentage points). We find insignificant effects on enrollment within five years after high school and insignificant effects on persistence and attainment.

<A>5. Discussion and Conclusions

From the perspective of state legislators who sought to reduce barriers to college entry and thus facilitate higher educational attainment for low-income youth, these results may be seen as somewhat disappointing. Our top-line findings are a 0.1 percentage-point increase in the likelihood of attending any postsecondary institution within one year of expected high school graduation, a 1.6 percentage-point increase in the likelihood of attending any postsecondary institution within five years, and a 0.7 percentage-point increase in the likelihood of earning a bachelor's degree within five years, with each of these estimated effects being statistically insignificant (p-values = 0.92, 0.21, and 0.36, respectively).[32] These findings, however, should

[32] Given our standard errors, we would have power to identify these effects as statistically significant if the point estimates had been above 1.8, 2.4, and 1.5 percentage points, respectively.

not be surprising since Goldhaber et al. (2020) found little evidence that the CBS program (and the early commitment element in particular) improved the trajectory of high school outcomes.[33]

Yet, CBS-eligible students are significantly more likely to enroll in an in-state college, relative to out-of-state colleges. This result is consistent with evidence from other state aid programs, for example, Cornwell, Mustard, and Sridhar's (2006) analysis of the Georgia HOPE scholarship. This shift aligns with the programmatic design of the CBS, as scholarship money can only be used at in-state institutions. This shifting of students from out-of-state to in-state institutions may well be of value to Washington, given concerns about the education level of the Washington State workforce.

Washington's College Bound Scholarship is estimated to have smaller effects than those found for some place-based early promise scholarship programs. For example, Page et al. (2018, p. 2) conclude, "(a)s a result of Promise eligibility, Pittsburgh Public School graduates are approximately 5 percentage points more likely to enroll in college, particularly four-year institutions; 10 percentage points more likely to select a Pennsylvania institution; and 4 to 7 percentage points more likely to enroll and persist into a second year of postsecondary education" (p. 2).

There are a couple of plausible reasons explaining why Washington's pledge program is found to be less impactful than place-based early promise programs. The pledge requirement will certainly cause the program to fail to impact some disadvantaged students who do everything but satisfy the signing of the pledge in middle school and are thus ineligible to receive CBS funding. Indeed, it is possible that this causes discouragement among some of the income-eligible, no-

[33] However, we should note that CBS may have affected high school outcomes in ways that are not as visible in administrative records available to us, such as taking college entrance exams, meeting with a counselor or college advisor, etc. Thus, our earlier findings of no apparent sizable impacts on high school outcomes might not automatically mean that CBS would have no effect on postsecondary outcomes.

pledge students, as those who fail to sign the pledge may become aware of the significant missed opportunity to receive college funding as they near college age, causing them to be less attached to the idea of pursuing continued schooling. This is consistent with earlier findings (Goldhaber et al. 2020) that CBS-eligible students are less likely to remain enrolled though the twelfth grade, and the slightly more positive findings for college enrollment for those eligible students who remain enrolled in Washington schools in the twelfth grade.

Combining the possibility of discouragement with the lack of evidence that the CBS improves educational trajectories in high school suggests the CBS program could be designed or implemented differently in order to more effectively accomplish the goal of increasing postsecondary educational attainment. In particular, we argue that more ought to be done to ensure that the possibility of going to college is made more salient to pledge signers and that they receive more specific guidance about college preparation while in high school.

We encourage state legislators to consider making the "promise" of funding more certain. The State of Washington recently took a step in the direction of making the funding more certain with regard to its older financial aid program. Legislators passed the Washington College Grant as part of its Workforce Education Investment Act in spring 2019. This act converted the state's traditional college financial aid program, the State Need Grant, which was underfunded in many years, into an entitlement program (Long 2019; Zumeta 2019). On the surface, this guarantee of financial aid for needy students seems as if it will lessen the importance of the College Bound Scholarship. However, note this new entitlement determines eligibility when the student is a high school senior and completes the FAFSA. As such, this new source of aid will remain an uncertain prospect for low-income middle school students given uncertainty in their parent's future income. That is, this new program does not replace the CBS's early commitment of

funding for low-income students. We contend than an early commitment promise program would yield the benefits of changing needy students' expectations and behaviors in ways that are more effective than the state's current programs.

Assuming that legislators want to maximize low-income youth's college attendance, the State may want to consider doing away with the pledge as a requirement for CBS receipt, thus converting CBS from an early commitment *pledge* program to an early commitment *promise* program. To the extent that the pledge requirement itself is not beneficial in leading to better high school preparation, there are clearly benefits to making the CBS funding available to income-eligible students who fail to sign the pledge. Surely some of those who fail to sign the pledge are students who have the capacity to do well in college but develop strong college aspirations after middle school and thus after the closing of the pledge-signing window.

We acknowledge the issue that if a promise of funding were made to all low-income middle school students, some of those students might not remain low-income late into high school. Such fortunate students whose parent's income rises during these years may not be as worthy of need-based financial aid. However, this group is unlikely to be large and making this promise guaranteed would create more clarity for all low-income middle school students, the vast majority of whom stay low-income into high school. Finally, note that by eliminating the requirement that the family's income remain low through to FAFSA completion (i.e., below 65 percent of the state's median income), would remove any disincentive for growth in parental income.

References

Barr, Andrew, and Sarah E. Turner. 2013. Expanding enrollments and contracting state budgets: The effect of the Great Recession on higher education. *The ANNALS of the American Academy of Political and Social Science* 650(1): 168-193.

Barron's Educational Series, Inc. 2008. *2009 Barron's profiles of American colleges*. 28th edition. New York: Barron's Educational Series.

Bartik, Timothy J., Brad Hershbein, and Marta Lachowska. 2017. The effects of the Kalamazoo Promise Scholarship on college enrollment, persistence, and completion. W.E. Upjohn Institute for Employment Research Working Paper No. 15-229.

Black, Sandra E., Jane Arnold Lincove, Jenna Cullinane, and Rachel Veron. 2015. Can you leave high school behind? *Economics of Education Review* 46:52-63.

Carruthers, Celeste K., and William F. Fox. 2016. Aid for all: College coaching, financial aid, and post-secondary persistence in Tennessee. *Economics of Education Review* 51:97-112.

Conger, Dylan, Mark C. Long, and Patrice Iatarola. 2009. Explaining race, poverty, and gender disparities in advanced course-taking. *Journal of Policy Analysis and Management* 28(4): 555-576.

Conklin, Mary E. and Ann Ricks Dailey. 1981. Does consistency of parental educational encouragement matter for secondary school students? *Sociology of Education* 54(4): 254-262.

Cornwell, Christopher, David B. Mustard, and Deepa J. Sridhar. 2006. The enrollment effects of merit-based financial aid: Evidence from Georgia's HOPE program. *Journal of Labor Economics* 24(4): 761-786.

Darolia, Rajeev, and Cory Koedel. 2017. How high schools explain students' initial colleges and majors. CALDER Working Paper No.165, American Institutes for Research.

Dobbie, Will, and Roland G. Fryer, Jr. 2009. Are high quality schools enough to close the achievement gap? Evidence from a social experiment in Harlem. NBER Working Paper No. 15473.

Duncan, Greg J., Ariel Kalil, and Kathleen M. Ziol-Guest. 2017. Increasing inequality in parent incomes and children's schooling. *Demography* 54(5): 1603-1626.

Fletcher, Jason, and Marta Tienda. 2010. Race and ethnic differences in college achievement: Does high school attended matter? *The Annals of the American Academy of Political and Social Science* 627(1): 144-166.

Fumia, Danielle, Kristofer Bitney, and Michael Hirsch. 2018. *The effectiveness of Washington's College Bound Scholarship Program* (Document No. 18-12-2301). Olympia: Washington State Institute for Public Policy.

Fumia, Danielle, Kristofer Bitney, and Michael Hirsch. 2019. *The effectiveness of Washington's College Bound Scholarship program: Supplemental report* (Document No. 18-12-2301). Olympia: Washington State Institute for Public Policy.

Goldhaber, Dan, Mark C. Long, Ann E. Person, Jordan Rooklyn, and Trevor Gratz. 2019. Sign e up: The factors predicting students' enrollment in an early commitment scholarship program? *AERA Open* 5(2): 1-18.

Goldhaber, Dan, Mark C. Long, Trevor Gratz, and Jordan Rooklyn. 2020. Pledging to do 'good': An early commitment pledge program, college scholarships, and high school outcomes in Washington State. *Educational Evaluation and Policy Analysis* 42(1): 110-133.

Goyette, Kimberly A. 2008. College for some to college for all: Social background, occupational expectations, and educational expectations over time. *Social Science Research* 37(2): 461-484.

Harris, Douglas N., Raquel Farmer-Hinton, Debbie Kim, John Diamond, Tangela Blakely Reavis, Kelly Krupa Rifelj, Hilary Lustick, and Bradley Carl. 2018. The promise of free college (and its potential pitfalls). Washington, DC: Brown Center on Education Policy, Brookings Institution.

Independent Colleges of Washington (ICW). 2019. *About ICW*. Available https://icwashington.org/#. Accessed 25 June 2019.

Indiana's 21st Century Scholars Program. 2019. *Our history*. Available https://21centuryscholars.indiana.edu/about/history.html. Accessed 29 April 2020.

LeGower, Michael, and Randall Walsh. 2017. Promise scholarship programs as place-making policy: Evidence from school enrollment and housing prices. *Journal of Urban Economics* 101:74-89.

Long, Katherine. 2019. Could you go to college tuition-free in Washington? Here's how to find out. *Seattle Times*, 28 May.

Mendoza, Pilar, Jesse P. Mendez, and Zaria Malcolm. 2009. Financial aid and persistence in community colleges: Assessing the effectiveness of federal and state financial aid programs in Oklahoma. *Community College Review* 37(2): 112-135.

Mendoza, Pilar and Jesse P. Mendez. 2012. The Oklahoma's Promise Program: A national model to promote college persistence. *Journal of College Student Retention: Research, Theory & Practice* 14(3): 397-421.

Michelmore, Katherine, and Susan Dynarski. 2017. The gap within the gap: Using longitudinal data to understand income differences in educational outcomes. *AERA Open* 3(1): 1-18.

National Center for Education Statistics (NCES). 2019. *IPEDS*. Available https://nces.ed.gov/ipeds/. Accessed 25 June 2019.

Neuberger, Zoë. 2006. *Implementing direct certification: States and school districts can help low-income children get the free school meals for which they are eligible*. Available www.cbpp.org/files/8-11-06fa.pdf. Accessed 29 April 2020.

Page, Lindsay C., Jennifer E. Iriti, Danielle J. Lowry, and Aaron M. Anthony. 2018. The promise of place-based investment in postsecondary access and success: Investigating the impact of the Pittsburgh Promise. *Education Finance and Policy* 14(4): 1-60.

Perna, Laura W., and Elaine W. Leigh. 2018. Understanding the promise: A typology of state and local college promise programs. *Educational Researcher* 47(3): 155-180.

Ranalli, Dennis, Edward Harper, Rosemary O'Connell, Jay Hirschman, Nancy Cole, Quinn Moore, and Brandon Coffee-Borden. 2009. *Direct certification in the National School Lunch Program: State implementation progress*. Available https://files.eric.ed.gov/fulltext/ED507350.pdf. Accessed 19 April 2021.

Rosenthal, Robert, and Lenore Jacobson. 1968. Pygmalion in the classroom. *The Urban Review* 3(1): 16-20.

Rubin, Donald B. 1987. *Multiple imputation for nonresponse in surveys*. New York: Wiley.

Ruffini, Krista. 2018. Universal access to free school meals and student achievement: Evidence from the Community Eligibility Provision. Berkeley, CA: IRLE Working Paper No. 102-18.

Ryan, Camille L., and Kurt Bauman. 2016. *Educational attainment in the United States: 2015*. Available https://www.census.gov/content/dam/Census/library/publications/2016/demo/p20-578.pdf. Accessed 31 December 2018.

Sjoquist, David L., and John V. Winters. 2014. Merit aid and post-college retention in the state. *Journal of Urban Economics* 80:39-50.

Sewell, William H., Archibald O. Haller, and George W. Ohlendorf. 1970. The educational and early occupational status attainment process: Replication and revision. *American Sociological Review* 35(6): 1014-1027.

Snyder, Thomas D., and Sally A. Dillow. 2012. *Digest of education statistics 2011*. Available https://nces.ed.gov/pubs2012/2012001.pdf. Accessed 19 April 2021.

Snyder, Thomas D., Cristobal de Brey, and Sally A. Dillow. 2019. *Digest of Education Statistics 2017*. Available https://nces.ed.gov/pubs2018/2018070.pdf. Accessed 15 April 2021.

St. John, Edward P., Shouping Hu, and Jeff Weber. 2001. State policy and the affordability of public higher education: The influence of state grants on persistence in Indiana. *Research in Higher Education* 42(4): 401-428.

St. John, Edward P., Glenda D. Musoba, and Ada B. Simmons. 2003. Keeping the promise: The impact of Indiana's Twenty-First Century Scholars program. *The Review of Higher Education* 27(1): 103-123.

St. John, Edward. P., Glenda Droogsma Musoba, Ada B. Simmons, Choong-Guen Chung, Jack Schmit, and Joanne Peng. 2004. Meeting the access challenge: An examination of Indiana's Twenty-first Century Scholars program. *Research in Higher Education* 45(8): 829-871.

St. John, Edward P., Jacob P. K. Gross, Glenda Droogsma Musoba, and Anna S. Chung. 2005. A step toward college success: Assessing attainment among Indiana's Twenty-First Century Scholars. Indianapolis, IN: Lumina Foundation for Education.

St. John, Edward P., Amy S. Fisher, Malisa Lee, Nathan Daun-Barnett, Krystal Williams. 2008. Educational opportunity in Indiana: Studies of the Twenty-first Century Scholars Program using state student unit record data systems. Unpublished paper, University of Michigan.

Thiede, Brian C., and Shannon M. Monnat. 2016. The Great Recession and America's geography of unemployment. *Demographic Research* 35(30): 891-928.

Toutkoushian, Robert K., and Don Hossler, Stephen L. DesJardins, Brian McCall, Manuel S. Gonzalez Canche. 2015. The effect of participating in Indiana's Twenty-First Century Scholars program on college enrollments. *The Review of Higher Education* 39(1): 59-95.

Usher, Charles L., David S. Shanklin, and Judith B. Wildfire. 1990. *Evaluation of the Food Distribution Program on Indian Reservations*. Available https://www.fns.usda.gov/evaluation-food-distribution-program-indian-reservations-3. Accessed 25 April 2012.

van Buuren, S., H.C. Boshuizen, and D.L. Knook. 1999. Multiple imputation of missing blood pressure covariates in survival analysis. *Statistics in Medicine* 18(6): 681-694.

Washington Higher Education Coordinating Board (WHECB). 2012. *key facts about higher education in Washington*. Available https://wsac.wa.gov/sites/default/files/KeyFacts2012.pdf. Accessed on 24 April 2012.

Washington State Legislature. 2007a. *Intent—finding*. *RCW 28B.118.005*. Available https://app.leg.wa.gov/RCW/default.aspx?cite=28B.118.005. Accessed 1 July 2019.

Washington State Legislature. 2007b. *Program design and student eligibility. RCW 28B.118.010*. Available https://app.leg.wa.gov/RCW/default.aspx?cite=28B.118.010. Accessed 1 July 2019.

Washington Student Achievement Council (WSAC). 2013. *Frequently* Asked Questions for College Bound Seniors. Available www.wsac.wa.gov/sites/default/files/CBS-FAQsForSeniors-2013.pdf. Accessed 27 August 2013.

Washington Student Achievement Council (WSAC). 2017. *College Bound Scholarship report*. Available www.wsac.wa.gov/sites/default/files/2017.CBS.Report.pdf. Accessed 26 May 2017.

Washington Student Achievement Council (WSAC). 2019a. *College bound*. Available https://www.wsac.wa.gov/college-bound. Accessed 1 July 2019.

Washington Student Achievement Council (WSAC). 2019b. *Frequently asked questions for seniors*. Available https://readysetgrad.wa.gov/sites/default/files/2019-20-cbs-senior-faqs.pdf. Accessed 26 September 2019.

Ziol-Guest, Kathleen M., and Kenneth T.H. Lee. 2016. Parent income-based gaps in schooling: Cross-cohort trends in the NLSYs and the PSID. *AERA Open* 2(2): 233-285.

Zumeta, William. 2019. Washington state's big bet on 'free college'. *The Conversation*, 18 July.

Table 1. Descriptive Statistics for Student Outcomes by Eligibility Status, Pre- and Post-Policy

Variable	All Students (1)	Eligible Students		Ineligible Students			
		Pre-Policy (Pseudo-Eligible) (2)	Post-Policy (3)	Pre-Policy (4)	Post-Policy (5)	Pre-Policy, Border Eligible (6)	Post-Policy, Border Eligible (7)
Within 1 year of high school, enrolled at any:							
Postsecondary (PSE) Institution	0.502	0.315	0.365	0.611	0.646	0.417	0.443
2-Year PSE Institution	0.269	0.217	0.245	0.287	0.302	0.237	0.263
4-Year PSE Institution	0.272	0.129	0.143	0.379	0.392	0.214	0.207
In-State PSE Institution	0.393	0.268	0.293	0.486	0.483	0.319	0.311
Out-of-State PSE Institution	0.119	0.049	0.077	0.135	0.180	0.103	0.141
In-State 4-Year PSE Institution	0.193	0.099	0.113	0.265	0.265	0.136	0.127
Out-of-State 4-Year PSE Institution	0.081	0.030	0.030	0.116	0.130	0.078	0.080
Very Competitive 4-Year PSE Institution	0.130	0.045	0.056	0.183	0.204	0.087	0.093
Within 5 years of high school†, enrolled at any:							
Postsecondary Institution	0.621	0.474	0.481	0.735	0.737	0.564	0.537
2-Year PSE Institution	0.418	0.375	0.366	0.457	0.439	0.394	0.358
4-Year PSE Institution	0.386	0.220	0.245	0.506	0.530	0.324	0.328
In-State PSE Institution	0.514	0.401	0.406	0.601	0.595	0.437	0.397
Out-of-State PSE Institution	0.164	0.107	0.107	0.209	0.216	0.179	0.187
In-State 4-Year PSE Institution	0.271	0.152	0.176	0.354	0.372	0.193	0.190
Out-of-State 4-Year PSE Institution	0.135	0.076	0.077	0.181	0.190	0.146	0.153
Very Competitive 4-Year PSE Institution	0.168	0.070	0.077	0.240	0.258	0.134	0.132
Persistently enrolled through:							
Second Year after On-Time High School (HS) Graduation Date	0.407	0.234	0.261	0.518	0.552	0.325	0.337
Third Year after On-Time HS Graduation Date s	0.343	0.181	0.203	0.452	0.481	0.268	0.274
Fourth Year after On-Time HS Graduation Date ‡	0.297	0.145	0.158	0.408	0.425	0.223	0.223

Fifth Year after On-Time HS Graduation Date †	0.275	0.131	0.140	0.386	0.396	0.214	0.199
Earned an Associate's Degree by End of:							
Second Year after On-Time HS Graduation Date	0.065	0.033	0.040	0.080	0.089	0.051	0.063
Third Year after On-Time HS Graduation Date	0.084	0.050	0.055	0.106	0.112	0.068	0.075
Earned a Bachelor's Degree by End of:							
Fourth Year after On-Time HS Graduation Date‡	0.148	0.054	0.050	0.235	0.217	0.116	0.097
Fifth Year after On-Time HS Graduation Date†	0.200	0.081	0.079	0.300	0.292	0.152	0.131
Number of Students (cohorts 1-6)	489,161	74,008	151,291	94,023	169,839	7,298	12,740

Notes: † Available for cohorts 1-3; ‡ Available for cohorts 1-4; s Available for cohorts 1-5.

Table 2. Descriptive Statistics for Student Characteristics by Eligibility Status, Pre- and Post-Policy

		Eligible Students		Ineligible Students			
Variable	All Students (1)	Pre-Policy (Pseudo-Eligible) (2)	Post-Policy (3)	Pre-Policy (4)	Post-Policy (5)	Pre-Policy, Border Eligible (6)	Post-Policy, Border Eligible (7)
Age in 8th Grade	14.35	14.40	14.39	14.30	14.31	14.35	14.34
	(0.46)	(0.60)	(0.46)	(0.44)	(0.39)	(0.44)	(0.48)
Female	0.485	0.483	0.484	0.481	0.490	0.479	0.482
Migrant	0.031	0.063	0.067	0.001	0.001	0.004	0.006
Bilingual	0.068	0.142	0.129	0.013	0.012	0.036	0.027
Homeless	0.063	0.091	0.132	0.013	0.017	0.050	0.070
Disabled	0.154	0.217	0.200	0.114	0.108	0.173	0.155
Home Language not English	0.158	0.240	0.294	0.040	0.068	0.084	0.124
Hispanic	0.170	0.269	0.310	0.051	0.067	0.104	0.124
African American	0.044	0.073	0.064	0.026	0.022	0.036	0.031
Asian	0.064	0.058	0.055	0.068	0.073	0.059	0.065
Pacific Islander	0.003	0.002	0.006	0.001	0.002	0.001	0.003
Native American	0.015	0.029	0.020	0.011	0.007	0.022	0.013
Multi-racial	0.088	0.086	0.101	0.069	0.087	0.090	0.110
Other Race	0.106	0.117	0.127	0.081	0.096	0.113	0.125
Free or Reduced-Price Lunch in 6th Grade	0.433	0.838	0.865	0.083	0.054	0.501	0.523
Free or Reduced-Price Lunch in 7th Grade	0.430	0.866	0.906	0.056	0.010	0.620	0.116
Free or Reduced-Price Lunch in 8th Grade	0.427	0.908	0.907	0	0	0	0
Free or Reduced-Price Lunch in 9th Grade	0.428	0.906	0.882	0	0.041	0	0
Free or Reduced-Price Lunch in 10th Grade	0.422	0.832	0.835	0.042	0.076	0.455	0.520
Free or Reduced-Price Lunch in 11th Grade	0.420	0.769	0.809	0.075	0.100	0.398	0.468
Free or Reduced-Price Lunch in 12th Grade	0.417	0.739	0.778	0.106	0.117	0.373	0.431
7th Grade Math (WASL) Test	-0.02	-0.45	-0.39	0.29	0.33	-0.05	-0.06
	(0.98)	(0.91)	(0.89)	(0.91)	(0.92)	(0.91)	(0.88)

7th Grade Reading (WASL) Test	-0.02	-0.42	-0.35	0.26	0.28	-0.05	-0.03
	(0.98)	(0.93)	(0.97)	(0.91)	(0.89)	(0.91)	(0.89)
Took Modified Version of the WASL (7th Grade)	0.0098	0.0063	0.0176	0.0031	0.0081	0.0053	0.0091
High School in Western WA (Excluding Puget Sound Region)	0.166	0.155	0.167	0.166	0.169	0.169	0.194
High School in Eastern Washington	0.206	0.238	0.257	0.166	0.169	0.211	0.194
County's Unemployment Rate in 7th Grade	6.60	5.97	7.34	5.49	6.81	5.60	7.11
	(2.41)	(1.35)	(2.68)	(1.20)	(2.70)	(1.32)	(2.67)
County's Unemployment Rate in 8th Grade	7.22	5.55	8.49	5.02	8.04	5.28	8.39
	(2.68)	(1.42)	(2.57)	(1.26)	(2.64)	(1.28)	(2.60)
County's Unemployment Rate in 9th Grade	7.80	5.45	9.37	4.89	9.04	5.17	9.24
	(2.62)	(1.51)	(1.90)	(1.39)	(1.89)	(1.46)	(1.98)
County's Unemployment Rate in 10th Grade	8.25	6.65	9.39	6.21	9.06	6.54	9.17
	(2.34)	(1.90)	(1.90)	(1.97)	(1.91)	(1.98)	(1.97)
County's Unemployment Rate in 11th Grade	8.53	9.01	8.54	8.83	8.13	8.93	8.31
	(2.00)	(2.04)	(1.93)	(2.10)	(1.91)	(2.09)	(1.93)
County's Unemployment Rate in 12th Grade	8.25	9.92	7.61	9.87	7.17	9.71	7.36
	(2.16)	(1.68)	(1.89)	(1.59)	(1.84)	(1.71)	(1.88)
Number of Students (cohorts 1-6)	489,161	74,008	151,291	94,023	169,839	7,298	12,740

Notes: WASL = Washington Assessment of Student Learning, standardized within grade and cohort. When seventh grade math or reading scores are missing, we have imputed them using multiple imputations. The summary statistics provided here have been combined via Rubin's rule (Rubin 1987). Puget Sound Region includes King, Pierce, Kitsap, Thurston, and Snohomish counties. Western and Eastern Washington divided by the Cascade Mountains. Standard deviations in parentheses.

Table 3. Estimated Effects of Washington's College Bound Scholarship Program on Postsecondary Enrollment Within 1 Year of On-Time High School Graduation

		(1) Enrolled in Any Post-secondary Institution		(2) Enrolled in a 2-Year Post-secondary Institution		(3) Enrolled in a 4-Year Post-secondary Institution		(4) Enrolled in an In-State Post-secondary Institution		(5) Enrolled in an Out-of-State Post-secondary Institution		(6) Enrolled in an In-State 4-Year Post-secondary Institution		(7) Enrolled in an Out-of-State 4-Year Post-secondary Institution		(8) Enrolled in a Very Competitive 4-Yr. Post-secondary Institution	
Panel A: Difference-in-Differences	**CBS-Eligible × Post-Policy**	**0.017**	***	**0.010**	***	**0.006**		**0.021**	***	**-0.009**	**	**0.013**	***	**-0.008**	***	**-0.007**	**
		(0.004)		**(0.003)**		**(0.004)**		**(0.003)**		**(0.003)**		**(0.003)**		**(0.003)**		**(0.003)**	
	Post-Policy	0.015	***	0.006		0.011	**	0.009	**	0.010	**	0.007	*	0.005		0.011	***
		(0.005)		(0.004)		(0.004)		(0.004)		(0.004)		(0.004)		(0.003)		(0.003)	
	Observations	489,161		489,161		489,161		489,161		489,161		489,161		489,161		489,161	
Panel B: Difference-in-Differences-in-Differences	**CBS-Eligible × Focal × Post-Policy**	**0.001**		**-0.005**		**0.007**		**0.014**		**-0.014**	**	**0.015**	**	**-0.008**		**0.002**	
		(0.009)		**(0.008)**		**(0.008)**		**(0.009)**		**(0.007)**		**(0.006)**		**(0.007)**		**(0.005)**	
	Focal × Post-Policy	0.017	*	0.016	*	-0.001		0.007		0.006		-0.002		0.000		-0.009	*
		(0.009)		(0.009)		(0.008)		(0.009)		(0.006)		(0.007)		(0.006)		(0.006)	
	Post-Policy	0.013	***	0.005		0.011	**	0.009	**	0.009	**	0.007	*	0.005		0.011	***
		(0.005)		(0.004)		(0.004)		(0.004)		(0.004)		(0.004)		(0.003)		(0.003)	
	Observations	489,161		489,161		489,161		489,161		489,161		489,161		489,161		489,161	

Notes: Evaluated using data from cohorts 1-6. Additional controls include seventh grade reading and math scores, female, race/ethnicity indicators, age in eighth grade, high school region, county unemployment rate in grades 7 through 12, modified test status, bilingualism, disability status, housing status, migrant status, English Language Learning status, full set of possible patterns of free or reduced-price (FRPL) eligibility during grades 6, 7, 8, 9, and 10 (i.e., just sixth, just seventh, just eighth, just ninth, just tenth, sixth and seventh, sixth and eighth, …., and eligibility in all five grades), FRPL-Eligible in eleventh and twelfth grades, CBS-Eligible, Focal (for panel B), and middle school fixed effects. Full regression results are available from the authors. Standard errors are clustered at the middle school level.

*p <= 0.10, **p <= 0.05, ***p <= 0.01.

Table 4. Estimated Effects of Washington's College Bound Scholarship Program on Postsecondary Enrollment within Five Years of On-Time High School Graduation

		(1) Enrolled in Any Post-secondary Institution		(2) Enrolled in a 2-Year Post-secondary Institution		(3) Enrolled in a 4-Year Post-secondary Institution		(4) Enrolled in an In-State Post-secondary Institution		(5) Enrolled in an Out-of-State Post-secondary Institution	(6) Enrolled in an In-State 4-Year Post-secondary Institution		(7) Enrolled in an Out-of-State 4-Year Post-secondary Institution	(8) Enrolled in a Very Competitive 4-Yr. Post-secondary Institution	
Panel A: Difference-in-Differences	**CBS-Eligible × Post-Policy**	**0.008**	*	**0.009**	*	**0.006**		**0.011**	**	**-0.004**	**0.009**	**	**-0.004**	**-0.008**	**
		(0.005)		**(0.005)**		**(0.004)**		**(0.005)**		**(0.004)**	**(0.004)**		**(0.003)**	**(0.003)**	
	Post-Policy	0.014	**	0.001		0.018	***	0.013	**	0.002	0.020	***	0.000	0.014	***
		(0.007)		(0.006)		(0.006)		(0.006)		(0.006)	(0.005)		(0.006)	(0.004)	
	Observations	248,683		248,683		248,683		248,683		248,683	248,683		248,683	248,683	
Panel B: Difference-in-Differences-in-Differences	**CBS-Eligible × Focal × Post-Policy**	**0.016**		**0.019**	*	**0.004**		**0.022**	*	**-0.006**	**0.011**		**-0.008**	**-0.004**	
		(0.012)		**(0.012)**		**(0.011)**		**(0.012)**		**(0.010)**	**(0.009)**		**(0.009)**	**(0.007)**	
	Focal × Post-Policy	-0.009		-0.012		0.002		-0.012		0.003	-0.001		0.004	-0.005	
		(0.012)		(0.012)		(0.011)		(0.012)		(0.010)	(0.010)		(0.009)	(0.007)	
	Post-Policy	0.015	**	0.002		0.018	***	0.014	**	0.001	0.020	***	0.000	0.014	***
		(0.007)		(0.006)		(0.006)		(0.006)		(0.006)	(0.005)		(0.006)	(0.004)	
	Observations	248,683		248,683		248,683		248,683		248,683	248,683		248,683	248,683	

Notes: Evaluated using data from cohorts 1-3. Additional controls include seventh grade reading and math scores, female, race/ethnicity indicators, age in eighth grade, high school region, county unemployment rate in grades 7 through 12, modified test status, bilingualism, disability status, housing status, migrant status, English Language Learning status, full set of possible patterns of free or reduced-price lunch (FRPL) eligibility during grades 6, 7, 8, 9, and 10 (i.e., just sixth, just seventh, just eighth, just ninth, just tenth, sixth and seventh, sixth and eighth, …., and eligibility in all five grades), FRPL-Eligible in eleventh and twelfth grades, CBS-Eligible, Focal (for panel B), and middle school fixed effects. Full regression results are available from the authors. Standard errors are clustered at the middle school level.

*p <= 0.10, **p <= 0.05, ***p <= 0.01.

Table 5. Estimated Effects of Washington's College Bound Scholarship Program on Postsecondary Persistence and Degree Attainment

		(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)	
		Persistently Enrolled† Through:								Earned an Associate's Degree by End of:				Earned a Bachelor's Degree by End of:			
		Second Year after On-Time HS Graduation Date		Third Year after On-Time HS Graduation Date ‡		Fourth Year after On-Time HS Graduation Date ‡		Fifth Year after On-Time HS Graduation Date ‡		Second Year after On-Time HS Graduation Date		Third Year after On-Time HS Graduation Date ‡		Fourth Year after On-Time HS Graduation Date ‡		Fifth Year after On-Time HS Graduation Date ‡	
Panel A: Difference-in-Differences	**CBS-Eligible × Post-Policy**	**-0.004**		**-0.005**		**-0.001**		**0.003**		**-0.007**	***	**-0.003**		**0.015**	***	**0.009**	***
		(0.003)		**(0.003)**		**(0.003)**		**(0.004)**		**(0.002)**		**(0.002)**		**(0.002)**		**(0.003)**	
	Post-Policy	0.024	***	0.023	***	0.022	***	0.012	**	0.008	***	0.008	***	-0.006		-0.002	
		(0.004)		(0.004)		(0.005)		(0.005)		(0.002)		(0.002)		(0.004)		(0.004)	
	Observations	489,161		408,632		330,147		248,683		489,161		408,632		330,147		248,683	
Panel B: Difference-in-Differences-in-Differences	**CBS-Eligible × Focal × Post-Policy**	**-0.001**		**-0.003**		**0.001**		**0.009**		**-0.008**	*	**-0.007**		**0.006**		**0.007**	
		(0.009)		**(0.007)**		**(0.008)**		**(0.009)**		**(0.004)**		**(0.005)**		**(0.006)**		**(0.008)**	
	Focal × Post-Policy	-0.003		-0.002		-0.003		-0.007		0.001		0.004		0.010		0.002	
		(0.009)		(0.008)		(0.008)		(0.010)		(0.004)		(0.005)		(0.007)		(0.008)	
	Post-Policy	0.024	***	0.024	***	0.022	***	0.013	**	0.008	***	0.007	***	-0.006	*	-0.002	
		(0.004)		(0.004)		(0.005)		(0.005)		(0.002)		(0.003)		(0.004)		(0.005)	
	Observations	489,161		408,632		330,147		248,683		489,161		408,632		330,147		248,683	

Notes: † Persistently Enrolled is defined as enrolled in each academic year through year *t* or received a bachelor's degree by year *t*.
‡ Data for third, fourth, and fifth year after on-time high school graduation is available for cohorts 1-5, 1-4, and 1-3, respectively.
Additional controls include seventh grade reading and math scores, female, race/ethnicity indicators, age in 8th grade, high school region, county unemployment rate in grades 7 through 12, modified test status, out-of-grade level test status, bilingualism, disability status, housing status, migrant status, English Language Learning status, full set of possible patterns of free or reduced-price lunch (FRPL) eligibility during grades 6, 7, 8, 9, and 10 (i.e., just sixth, just seventh, just eighth, just ninth, just tenth, sixth and seventh, sixth and eighth, …., and eligibility in all five grades), FRPL-Eligible in eleventh and twelfth grades, CBS-Eligible, Focal (for panel B), and middle school fixed effects. Full regression results are available from the authors. Standard errors are clustered at the middle school level.
*p<=0.10, **p<=0.05, ***p<=0.01.