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*College-Going Expectations
and the Factors Predicting
Whether Students Sign Up
for Washington's College
Bound Scholarship Program?
A Mixed Methods Evaluation*

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Abstract

We investigate factors influencing student sign-ups for Washington State's College Bound Scholarship (CBS) program and consider whether there is scope for the program to change college enrollment expectations. We find that student characteristics associated with signing the scholarship closely parallel characteristics of low-income students who attend 4-year colleges, suggesting that signing the pledge is driven largely by pre-existing expectations of college-going. We also find evidence that student sign-up rates are lower than has been previously reported, which is important given the perception among program administrators that nearly all eligible students sign up.

1. Introduction

College and credential completion rates have recently increased for the first time since the Great Recession (Shapiro et al., December 2017; Shapiro et al., 2016). Yet college attainment gaps among various demographic and socioeconomic groups persist, with minority and low-income students being far less likely to obtain college degrees (Shapiro et al., December 2017; Shapiro et al., April 2017; U.S. Department of Education, 2016). Among many reasons, one factor that may contribute to this gap are low expectations of college attendance due to the unaffordability of college for many disadvantaged-youths.

A state policy response to the relatively low level of college attainment of disadvantaged students is to implement programs designed to make college more affordable, and also to alert disadvantaged students early (e.g., in middle school) about these programs so that they perceive college access to be within their grasp. One such program is an early-commitment, need-based scholarship in which states or local areas commit early in a low-income student's schooling to provide financial aid for college if, in return, the student pledges to do well in school and stay out of trouble. A central theory of action of the early commitment programs are that the pledge will change students' expectations about college while they still have time to adjust their educational trajectories toward college.

However, there is very little evidence about the factors that predict whether and why students sign up for these early commitment pledge programs.¹ Understanding who signs up for these programs could potentially aid in targeting State resources to better increase sign up rates. This is an important gap in the financial aid and college-going literature given that students can only financially and academically benefit from such programs if they sign up for them.

This paper evaluates Washington State's College Bound Scholarship (CBS), an early commitment scholarship that promises full-tuition to low-income middle school students that participate. By examining student-level historical data and conducting qualitative interviews, this paper addresses: (1) What student and middle school characteristics are associated with signing the CBS pledge? (2) How closely do these characteristics parallel pre-program predictors of college enrollment? And (3) what do program administrators report doing to encourage student uptake of the program?

Our study finds that factors associated with signing up are similar to factors associated with enrollment in college, and this pattern holds for each of the first three cohorts of CBS eligible students. Indeed, there is little evidence that the demographic patterns predicting sign-ups change over the first three cohorts of program administration. This calls into question whether the pledge program is changing college expectations and subsequently calls into question one of the arguments for the early commitment pledge program: that it will lead to a change in college-going expectations.

Additionally, we find that there are positive correlations between a schools' predicted and actual sign-up rates, but the correlation between the two (0.40) is not overwhelmingly high, suggesting that targeting resources toward encouraging student sign-ups at schools with surprisingly low sign-up rates could create significant gains in boosting sign-ups. In doing so, we may consider the tactics suggested by program administrators, who agree that individualized approaches are critical for signing up more students and good data are necessary for such implementation.

2. Policy Background and Literature Review

2.1 Early Commitment Pledge Programs and their Theory of Action

Several states have implemented financial aid programs designed to address college enrollment and attainment gaps by offering in-state low-income adolescents an early promise of funding for college in exchange for a student's early commitment pledge (typically during 7th-9th grades). Pledges commonly asks students to do well in high school, be a good citizen, and apply to college. We label such programs as "early commitment pledge programs." Currently there are three states (Indiana, Oklahoma, and Washington) that are operating uniform, statewide programs that meet Blanco's (2005) "three core criteria for early commitment programs: that they make a guarantee of aid; that aid is designated only for economically disadvantaged students; and that students are identified in elementary, middle school, or early high school" (p. 9).²

These early commitment pledge programs are similar to other promise programs³ that spread rapidly in recent decades (Dynarski, 2004; LeGower and Walsh, 2017).⁴ The effects of non-early promise programs have been studied extensively. The findings tend to show positive effects for in-state college matriculation (with some diversion of students from out-of-state to in-state) and credit accumulation (e.g. Bartik, Hershbein, and Lachowka, 2017; Carruthers and Özek, 2016; Page, Iriti, Lowry, & Anthony, 2018; Scott-Clayton, 2011; Cornwell et al., 2006; Perna and Leigh, 2017; Sjoquist and Winters, 2014). Yet, these programs may also exacerbate college-attainment gaps between advantaged and disadvantaged students: for instance, Dynarski (2000) finds that "Georgia's program has likely increased the college attendance rate of all 18- to 19-year-olds by 7.0 to 7.9 percentage points", yet "widened the gap in college attendance between blacks and whites and between those from low- and high-income families" (p. 629)⁵.

While early commitment pledge programs are similar to other promise programs insofar as they typically offer aid at in-state colleges for students achieving modest academic thresholds, they differ from other promise programs in a key way: they require students to sign an early commitment pledge as a condition of eligibility. This programmatic element is designed to increase college-going, and, importantly, close college attendance gaps. In particular, they help low-income students directly by making college more affordable, and indirectly by signaling to them early enough that college is financially within their reach. In doing so, the early promise of a college scholarship is expected to raise students' expectations about the feasibility of college attendance and create a strong incentive for them to do well in high school and fulfill pledge requirements.

It is worth emphasizing that the opt-in nature of the pledge requirement is a feature designed to target students, particularly those who, due to financial concerns, might not have college-going expectations entering high school. College-going aspirations are expected to change high school behavior, for instance, to lead students to take high school courses that ready them for college. But if the action of opting-in has no effect on subsequent behavior in high school, then it is likely that early commitment pledge programs are likely to be less effective than other promise programs where eligibility is automatic. It is well known that programs that require participants to opt-in tend to have lower participation rates (Thaler & Sunstein, 2003).

Current existing studies on early commitment opt-in pledge programs are limited in their ability to identify treatment effects as they lack data needed to form appropriate comparison groups for those students who are eligible to participate in these programs. St. John and colleagues (2001, 2003, 2004, 2005, 2008) investigate the possible impact of Indiana's program, yet lacked data on cohorts of students before the introduction of the pledge program, and, more

importantly, lacked data needed to identify if a student was eligible for the program. As a result, they were forced to compare students who signed the pledge, to a comparison group of students who may or may not have been eligible. St. John et al. (2004), for example, used students who attended high-poverty schools, but who did not sign the pledge, as the control group. Fortunately, as we describe below, we have access to both CBS eligibility indicators and data on pre-policy cohorts of students. This allows us to explore the extent to which factors predicting whether students sign the pledge look similar to the factors associated with college enrollment from before the implementation of the CBS. In other words, we are able to investigate the degree to which the aspirations surrounding college attendance of different groups of students do or do not change⁶.

Prior research demonstrates a striking dichotomy exists between the aspirations of younger students to attend college and the actuality of college enrollments. Surveys of middle school students show that the vast majority, 88 percent according to one survey (National Center for Education Statistics, 1996), believe they will one day attend and graduate from college. Yet academically prepared, low-income students are less likely to apply to college as seniors and are “discouraged by the complexity of the process of applying for financial aid and college admissions, even if they are qualified and enthusiastic about going to college” (Avery & Kane, 2004, p. 356). These gaps in college enrollment do not appear to be related to a low-income family’s knowledge of the costs and benefits of college alone, which may indicate the importance of financial constraints for these families (Cheng & Peterson, 2018). Additionally, when college funding is available low-income students are less likely to know about it or are less familiar with the process for attaining it, resulting in lower college enrollments (Bettinger et al., 2012; Dynarski & Scott-Clayton, 2006; Hahn & Price, 2008; Long & Riley, 2007). Moreover,

low-income and minority students often lack a good understanding of the academic requirements needed to be admitted and to succeed in college (Kirst, Venezia, & Antonio, 2004; Rosenbaum, 2001). By the time that students reach their senior years, there is evidence that low-income students are substantially less likely to have taken courses necessary to succeed in college (Choy, 2001; Jacob & Linkow, 2011). Nevertheless, Castleman and Goodman (2018) find that intensive high school counseling benefits low-income students, and the program they study “successfully shifts enrollment toward four-year colleges which further resulted in “persistence through the third year of college” (p. 19).

Taken together, this body of research suggests that low-income students and their families could benefit not only from financial resources for college, but also from information about how to access those resources. Furthermore, low-income students may benefit from early commitment programs by changing their expectations about the possibilities of attending college, which in effect may encourage students to be better academically prepared. The College Bound Scholarship seeks to address all of these challenges.

2.2 The Washington State College Bound Scholarship Program

The CBS program was created by the state’s legislature in 2007 and is administered by the Washington Student Achievement Counsel (WSAC).⁷ The program was patterned on similar programs in Indiana (21st Century Scholars program, initiated in 1990) and Oklahoma (Oklahoma’s Promise, initiated in 1996) (see Appendix A and Appendix Table 1 for the differences between Washington’s CBS program and the programs in Indiana and Oklahoma, which are available in the Supplementary Material).

Participation in the CBS program follows a series of steps. First, a student is eligible to sign the CBS pledge if any of the following apply during her 7th or 8th grade year (or 9th grade for the first eligible cohort during 2008-09): the student was eligible for free or reduced-price lunch (FRPL), the student's family received Temporary Assistance for Needy Families (TANF), the student was a foster youth, or the student's family income was below 185% of the poverty line (which would also qualify the student for FRPL). For the first cohort, 185% of the poverty line was \$39,220 for a family of four.

When the student enters her senior year, the student's family income must fall within 65% of the state's median family income to receive the CBS financial aid. For reference, 65% of the state's median family income for a family of four was \$53,000 for the first cohort⁸. Should the student remain income-eligible in his or her senior year, the amount of guaranteed aid is both generous and transparent:

The scholarship amount will be based on tuition rates at Washington public colleges and universities. It will cover the tuition and fees (plus a small book allowance) that are not covered by other state financial aid awards such as the State Need Grant. You will receive your scholarship through your college or university as part of your financial aid award (WHECB, 2012).

The student can use the scholarship to attend any public or eligible private Washington state higher education institution.⁹ Students attending private institutions of higher education in Washington receive an amount equal to what the average student receives attending a comparable public institution in the state (typically the average award given at the University of Washington and Washington State University).¹⁰ The CBS covers 8 semesters (12 quarters), so

long as the student maintains satisfactory academic progress as determined by the college. The scholarship must be used within five years of high school graduation and cannot be used for graduate school. There is no financial cost for the student to sign up for CBS in middle school.

Given this low burden to sign up and the relatively undemanding pledge that students are asked to make, juxtaposed against the guaranteed benefits and the fact that a high percentage of middle school students anticipate attending college, it is surprising, as we discuss below, that sign-up rates are not uniformly high across the state (see Appendix A for more details about the CBS program and the pledge students are asked to sign).¹¹

3. Methods and Data

3.1 Quantitative Analytic Methods

We begin with a quantitative analysis of the individual and school characteristics that predict the likelihood of a student signing the CBS pledge in middle school. We estimate the specifications shown in Equations 1a and 1b using data on the first three cohorts of CBS-eligible students:

$$(1a) \quad Signed_{im} = F(\beta_0 + \beta_1 X_i + MSCE_m + \varepsilon_{im})$$

$$(1b) \quad Signed_{im} = F(\beta_0 + \beta_1 X_i + \beta_2 S_m + \varepsilon_{im})$$

The subscript i denotes the student and m denotes the middle school attended in 8th grade.¹² The dependent variable for this analysis, $Signed_{im}$, is an indicator variable that equals one if the student signed the pledge by the end of 8th grade (or 9th grade for cohort 1). The student-level predictors (i.e., the X_i vector) include: standardized scores on Washington's reading and mathematics assessments – known as the Washington Assessment of Student Learning (WASL) – when the student was in 6th grade and indicators for taking the WASL tests out-of-grade-level¹³ and taking a modified version of the WASL¹⁴; student's age in May of 8th

grade; and indicators for female, race/ethnicity group (Hispanic; Non-Hispanic African American, Asian, Hawaiian or Pacific Islander, or Native American or Alaskan Native; and Non-Hispanic and Two or More Races), disability status, migrant status, homeless status, “highly capable” status, “transitional bilingual” status, language spoken at home other than English, and attends a public school part-time (as a homeschooler or private school enrollee).

We estimate Equation 1a using a logit specification with middle school fixed effects, $MSCE_m$, to account for time-invariant school-level factors that may influence students’ signing the pledge.¹⁵ We estimate Equation 1b (which drops middle school fixed effects and adds middle school characteristics, S_m) using a hierarchical logistic regression (i.e., the logit analog of hierarchical linear modeling) with random intercepts. The advantage of the former specification is that it accounts for both observable and unobserved time-invariant school level factors. The disadvantage of 1a over 1b is that the former does not estimate the way that student sign-up rates are influenced by observable school-level characteristics. The following middle school characteristics are included in Equation 1b: percent of students receiving FRPL; mean standardized student score on the 6th grade mathematics WASL among 8th grade students in the school; 8th grade enrollment in fall (divided by 100); whether the school has a guidance counselor; the proximity to college slots (measured as the number of undergraduate students at a four-year college within a 50-mile radius¹⁶), and an indicator for the school’s region (Puget Sound [including King, Pierce, Kitsap, Thurston, and Snohomish counties], the remainder of Western Washington [i.e., west of the Cascade Mountains], and Eastern Washington). After running these logistic regressions, we compute the marginal effect of a one-unit increase in each variable (holding all other variables constant) on the probability that the student signs the pledge.

Next, we estimate versions of 1a and 1b where we replace the outcome with an indicator for enrolling in any college within four years of 9th grade entry¹⁷, $Enrolled_{im}$.

$$(2a) \quad Enrolled_{im} = F(\gamma_0 + \gamma_1 X_i + MSCE_m + \varepsilon_{im})$$

$$(2b) \quad Enrolled_{im} = F(\gamma_0 + \gamma_1 X_i + \gamma_2 S_m + \varepsilon_{im})$$

For these regressions, we use data from two pre-CBS¹⁸ cohorts. These regressions allow us to evaluate whether there are meaningful differences between the β_1 and β_2 vectors of coefficients using “*Signed*” as the dependent variable and the γ_1 and γ_2 vectors of coefficients using “*Enrolled*” as the dependent variable. If these sets of coefficients are similar, it would indicate that the types of students who are more prone to attend college are also more likely to sign the pledge. Substantial differences in the coefficients may also provide useful information. For example, given that girls are more likely to enroll in college than boys, we expect girls to be more likely to sign the pledge. If we instead find that boys are more likely to sign the pledge, it could indicate that: (a) the guidance counselors are doing a good job at getting the underrepresented group (boys) to sign the pledge; (b) the current advantage for low-income boys signing the pledge could be working to offset their disadvantage relative to girls in college enrollment; and/or (c) efforts focusing on getting low-income girls to sign the pledge could be fruitful given their predisposition to attend college.

To assess the similarity of the estimated vectors of coefficients using “*Enrolled*” rather than “*Signed*” as the dependent variable, we examine the correlation between the sets of marginal effects found for the two dependent variables. Then, to gain a better sense of whether the CBS program is encouraging students who are demographically unlikely to attend college, we compare the predicted probabilities generated by the enrollment and pledge models. We investigate whether the predicted enrollment and pledge probabilities align or diverge for each cohort of students eligible to sign the CBS pledge. Specifically, we assess the extent to which the

estimated coefficients from specification 2b (the coefficients from the college enrollment models) predict the estimated probabilities of signing the pledge for each CBS eligible cohort (generated from estimating specification 1b, the pledge model, separately by cohort).¹⁹

More formally, we generate two predicted probabilities for each individual in each post-policy cohort: $\hat{P}_{Picm} = F(\hat{\beta}_{0c} + \hat{\beta}_{1c}X_i + \hat{\beta}_{2c}S_m)$, which is the predicted probability of signing the pledge using the pledging coefficients estimated based on members of post-policy pledge cohort c , and $\hat{P}_{Eim} = F(\hat{\gamma}_0 + \hat{\gamma}_1X_i + \hat{\gamma}_2S_m)$, which is the predicted probability of a post-policy student enrolling in college based on pre-policy enrollment coefficients. We then assess the correspondence between these predicted probabilities by estimating the following regression for each post-policy pledge cohort:

$$(3) \quad \hat{P}_{Picm} = \alpha_{0c} + \alpha_{1c}\hat{P}_{Eim} + \alpha_{2c}\hat{P}_{Eim}^2 + \alpha_{3c}\hat{P}_{Eim}^3$$

We estimate (3) as a cubic as we are particularly interested in whether there are differential changes in the likelihood of signing the pledge along the distribution of probabilities of enrolling in college.

3.2 *Data for Quantitative Analysis*

The data we utilize are aggregated by Washington State's Education Research and Data Center (ERDC). ERDC maintains individual student level K-12 records for all public-school students in the state that can be linked to information about enrollment in two- or four-year colleges in Washington State, as well as those outside the state (through the National Student Clearinghouse). The ERDC data includes K-12 student information dating back to the 2005-06 school year, providing us data on two cohorts of students who did not have the opportunity to receive a CBS scholarship (those who were in 8th grade in 2005-06 and 2006-07) and three cohorts who were eligible to sign up (those who were in 8th grade in 2007-08, 2008-09, or 2009-

2010). We restrict the analysis to students who are known to be FRPL eligible, and therefore eligible to sign the pledge, in 7th or 8th grade (or 8th or 9th grade for the first post-policy cohort due to a temporary change in eligibility for this cohort), which brings our analytical sample size to 191,337 students.

Note that it is not possible with existing administrative data to construct a perfect measure of whether a student is eligible to sign up for the CBS in middle school, as these data do not have information on students who may be income eligible despite not receiving FRPL, the Supplemental Nutrition Assistance Program (SNAP), the Food Distribution Program on Indian Reservations (FDPIR), or TANF. Fortunately, the share of students who are income eligible only appears to be modest. Based on an analysis of families included in the first three waves of the 2008 Survey of Income and Program Participation (SIPP), we find that the share youth who are only eligible for the CBS due to income (i.e., who are not FRPL, SNAP, or TANF recipients or in foster care) is only 13.3%. Nevertheless, the absence of income-only eligible students in our analysis may bias our sign-up estimates upwards since these students may have a lower responsiveness to the CBS program than the students we correctly identify as eligible. (See Appendix B for our analysis of SIPP youth and a discussion surrounding the absence of income-eligible students only).

As noted above, the CBS program is overseen by the Washington Student Achievement Council which “provides strategic planning, oversight, and advocacy to support increased student success and higher levels of educational attainment in Washington.”²⁰ As part of their efforts to support the CBS, WSAC monitors sign-up rates across the state and by district. WSAC reported substantial success in increasing the sign-up rate since the CBS program began. Their

initial calculations, reported in Figure 1, show that the sign-up rate was 57% for the first cohort of eligible students and rose to 85% by the 6th cohort. As of 2016, their website stated:

In 2015, 91% of the Class of 2019 (8th graders whose deadline was June 30, 2015) submitted complete applications. This year, 110 districts had sign-up rates of 92% or higher. Of these, 77 school districts saw 100% of their eligible students sign up.²¹

Figure 1 suggests improvement over time in sign-up rates and little room for further improvement in a large number of school districts, as these approached 100 percent participation/sign up. Our estimates, discussed below, confirm improvement over time, but, as we describe below, we found that the baseline/first-year sign-up rate to be significantly lower than the figures previously reported by WSAC, suggesting room for growth in sign-up rates.

In particular, our calculations were somewhat different than those previously used by WSAC (WSAC has, since the release of our paper, adjusted their method for calculating sign up rates). To calculate the sign-up rate, we utilize student-level FRPL data, which capture eligibility in both 7th and 8th grades corresponding to the policy's eligibility requirements. In Table 1, we show our calculations of the sign-up rate for the first three eligible "Post-Policy" cohorts. In row (A), we find that the number of students signing the pledge increased from 14,176 to 18,802 across these three cohorts.²² By contrast, WSAC reported (as shown in Figure 1) that the number of students signing the pledge increased from 15,947 to 20,903 across these same three cohorts. Our total counts of students who signed the pledge are lower because we do not count pledges from foreign exchange students, students in foster care in 7th or 8th grade, students that have irreconcilable birthdays across observations, or students that did not attend 8th grade in a

Washington school. (Note that these same students are not included in our denominator). Also, we do not count pledges for which there was no corresponding student in our K-12 database.

Next, in row (B), we show that the number of clearly eligible students remained stable, ranging from 37,519 to 38,659 across the first three cohorts. This denominator is substantially higher than the denominator previously reported by WSAC (i.e., 28,093 to 29,856 as shown in Figure 1). WSAC used the number of FRPL students in 7th grade as recorded in October of the corresponding school year. The result is an early snapshot of eligibility that does not include students who are added to FRPL programs throughout the remainder of their 7th grade or at any point during their 8th grade²³.

We believe the sign-up rates we report represent an upper bound given that they do not include students who are made eligible to sign the pledge by virtue of participation in SNAP, FDPIR, or TANF, or who sign the pledge despite not being income eligible.²⁴ The sign-up rate we calculate by dividing (A) by (B) is 36.7% for the first cohort and 48.9% for the third cohort. These figures that are substantially lower than the 57% and 70% rates reported by WSAC in Figure 1, though the increase in our calculated rate over time is very close to that reported by WSAC (12.2 percentage points from first to third cohort versus WSAC's report of a 13-percentage point change).

In an effort to better track progress on the CBS sign-up rates, soon after the release of our working paper on July 28, 2016, WSAC changed the way they calculate sign-up rates to have their denominators reflect student mobility into CBS eligibility and called their new rates "reconciled rates" (Shankster et al., 2017). The distinction in the way sign-up rates are calculated may well be important because school districts and schools until 2017 could have thought that

they had only a few eligible students who had not signed the CBS pledge when in fact there may be many more.²⁵

In the last rows of Table 1, we show that there were sizable differences in sign-up rates across the three regions of the state, particularly in the first cohort, with Eastern Washington leading and Western Washington counties that surround the Puget Sound counties trailing. It is interesting to note that, while Eastern Washington had a high sign-up rate for the scholarship program compared to Western Washington counties (41.7% versus 28.1% for the first scholarship cohort), both regions have similar college enrollment rates (28.2% versus 27.1% for the first scholarship cohort). This heterogeneity in sign-up rates suggests the possibility of uneven communication and understanding of the program across the state and provides an argument for the qualitative research that we carry out.

Table 2 presents the descriptive statistics for our analytic sample, which consists of those students who are clearly eligible to sign up. Among eligible students, the share that enrolled in any college within four years after starting 9th grade increased across the two pre-policy cohorts (from 23.6% to 25.7%) and then increased again for the first post-policy cohort to 27.2%. Eligible students saw small gains in their test scores relative to not-clearly eligible students. Finally, note that eligible students tend to live closer to more undergraduate students than not-clearly eligible students (as indicated by the standardized number of undergraduates within 50 miles being greater than zero for eligible students). See appendix B for a discussion of how missing data is handled.

3.3 *Qualitative Data and Analytic Methods*

The goal of our qualitative analysis is to complement the quantitative research on uptake of the CBS by providing a deeper understanding of how school-level administrators understand the CBS, how information is conveyed to students, and what efforts schools are making to get students to sign the pledge. As the empirical evidence in Hurwitz and Howell (2014) suggests, school administrators, and guidance counselors in particular, play a vital role in laying the groundwork for students to be on a college-ready track and successfully enroll in college. We believe such qualitative information is key to understanding the CBS take-up rate.

This report draws upon analyses of data from two sets of semi-structured telephone interviews. The first set of interviews included the five CBS regional officers and their director on the College Success Foundation staff. The interviews were conducted either individually or in a small group between November and December 2015. Interview protocols, which are included in Appendix C, were designed to ensure consistent data collection on critical themes across respondents and to facilitate systematic analysis. At the same time, they allowed for unanticipated themes to emerge. A senior researcher led interviews while an analyst took notes. Interviews lasted between 60 and 120 minutes.

Regional officer interview themes aligned with the core research questions. Key themes included:

- Efforts to inform and engage various stakeholders in the CBS program (schools, students, parents, community organizations),²⁶
- Practices to encourage student uptake,
- Factors limiting student uptake,
- Evidence that the program is affecting students' behavior, and

- Factors limiting the program’s success.

After the interviews, the research team distilled notes into analytic themes. We then identified areas of agreement, disagreement, and patterns with respect to these themes. Overall, these interviews provided a high-level perspective on the CBS’s activities around the state. These interviews were used to inform development of the protocol for the second set of interviews with middle school principals and guidance counselors.

For this second round of interviews, we selected a sample of middle schools that were diverse based on geographic region and the extent of their correspondence or divergence in the school’s actual and predicted sign-up rates. We predicted each school’s sign-up rate for 2011-12 as follows:

$$(4) \quad \widehat{Signed}_m = F(\hat{\beta}_0 + \hat{\beta}_1 \bar{X}_m + \hat{\beta}_2 S_m),$$

where \widehat{Signed}_m is the school’s predicted sign-up rate, \bar{X}_m indicates the average of the school’s students’ characteristics and S_m are the school’s characteristics in 2011-12, and $\hat{\beta}_0$, $\hat{\beta}_1$, and $\hat{\beta}_2$ are estimated coefficients from Equation 1b, based on data from students in the first three CBS-eligible cohorts.²⁷ Table 3 shows the distribution of the 27 schools in which we conducted interviews. We conducted 30 principal and guidance counselor interviews between March and August 2016, including 25 guidance counselors (or other CBS program leaders) and 5 principals. We also interviewed one college readiness coordinator identified through professional contacts.

Analysis of principal and guidance counselor interviews proceeded in three steps. First, the research team developed a database corresponding to the interview protocols, with items organized around the research questions and key themes that emerged from the regional officer interviews. Second, a trained analyst coded interview notes as they were generated, entering information into the database with a senior adviser conducting periodic checks for quality and

consistency of the data. Finally, researchers extracted and analyzed data across cases on the key questions and themes.

4. Results

4.1 Findings for Research Question 1: What student and middle school characteristics are associated with signing the CBS pledge?

Table 4 reports three model specifications for the likelihood of students signing the pledge. Columns (1)-(3) of Table 4 present raw (not regression adjusted) differences in sign-up rates for each student characteristic, columns (4)-(6) show the school fixed effects specification (Equation 1a), and columns (7)-(9) show the specification with school characteristics (Equation 1b). Although there are some differences in the estimated coefficients between the models that do not condition on other characteristics (column 1) and those that do (columns 4 and 7), there is a fairly consistent pattern of the coefficients decreasing in magnitude, but maintaining their direction and significance with the addition of statistical controls. Those coefficients that do change substantially—such as taking a modified version of the WASL and attending public school part time—are for smaller student sub-groups.

Some of the groups that are traditionally considered to be “advantaged” in terms of educational attainment are more likely to sign the pledge. For example, as shown in column (1), we find that females, Asian Americans, and students categorized as gifted (“highly capable” in the state’s terms) are 7.3, 9.8, and 12.9 percentage points more likely to sign up, respectively, than males, non-Hispanic Whites, and students not categorized as gifted. Similarly, we find that a one standard deviation increase in a student’s math or reading test score is associated with a 5 percentage point increased probability of signing the pledge.

There are, however, some notable exceptions to the pattern of traditionally advantaged groups being most likely to sign up. For instance, as Table 4 shows, we also find that Hispanics, non-Hispanic African Americans, migrants, and transitional bilingual students are more likely to sign the pledge.²⁸ Similarly, the regional findings are somewhat surprising (especially in light of qualitative findings discussed below). As Table 4 shows, students who completed 8th grade in predominantly rural Eastern Washington are more likely to sign up than their peers who completed 8th grade in the more urban and suburban Puget Sound region.

Column (4) of Table 4 shows the mean marginal effects corresponding to the parameters estimated in Equation (1a). Similar to column (1), we find that a one standard deviation increase in student's math test score is associated with a 4.5 percentage point increase in the probability of signing the pledge, holding constant all other characteristics. Female students are 5.7 percentage points more likely to sign the pledge than otherwise comparable males. Relative to non-Hispanic White students, Hispanics and non-Hispanic African Americans, Asians, and multi-racial youth are more likely to sign up, while Native American or Alaskan Native youth are less likely to sign the pledge. Net of these student characteristics, the middle school attended clearly affects the propensity to sign-up; the F-statistic testing the null hypothesis that the addition of the school fixed effects is jointly zero is 17.1 (p-value=0.000).

In columns (7)-(9) of Table 4, we present the results including middle school characteristics rather than middle school fixed effects, corresponding to Equation (1b). We find higher sign-up likelihoods in schools that have more undergraduates within 50 miles and in schools with more students who are free or reduced-price lunch eligible, controlling for the student's own characteristics. Not surprisingly, the specification with middle school fixed effects

(column (4)) has a substantially stronger fit than the model with five school characteristics (column (7)), as can be seen by comparing the McFadden's Pseudo- R^2 of 0.116 and 0.046.

These findings are largely in line with interview reports about what drives students to sign up for the College Bound program, though not without a few exceptions. Regional officers emphasized the importance of school and district leadership, resources, and climate in supporting sign-up. Specifically, regional officers agreed that schools are the most critical partner in targeting eligible students, where they highlighted the need for a “champion” to take ownership of the program at the school level and take responsibility for its success there. In addition to the school champion, respondents noted the importance a strong school or community college-going culture, which may be reflected in the positive and significant coefficient for nearby undergraduate enrollment shown in Table 4. Somewhat surprising is the lack of significance of guidance counselors in predicting sign ups, as regional officers had pointed to these individuals as critical to the program’s success, regardless of whether they served as the champion. It is worth noting, however, that these respondents did not consider the mere presence of a counselor to be adequate. Rather, they noted that heavy workloads can leave some counselors struggling to prioritize the program. Similarly, they described variability across counselors in their ability to develop meaningful relationships with students, which they viewed as key to encouraging students to sign up. Finally, they felt that counselors’ access to accurate and timely FRPL data was necessary for success, but noted that many did not have such access, a problem echoed by the counselors themselves.

Indeed, while all schools included in the study used the fall FRPL list to identify eligible students, more than two-thirds of guidance counselors interviewed reported using additional means to identify eligible students who were not on the list. Most prominent among these other

tactics were sending forms to all students for families to self-identify (40%), giving applications to any new student, and teachers identifying potential students (20% each). This suggests that counselors and other program administrators recognized that the FRPL list does not capture all eligible students. Indeed, a fifth of counselors believed that calculated rates were over-estimates of program uptake.

When asked about the characteristics of students likely to sign up for the CBS, the most common responses offered by principals and guidance counselors were academic strength, a college orientation or expectation, and engaged parents. Although these characteristics may often be associated with traditional markers of advantage, they are not direct indicators of advantage. The latter two may be influenced by the actions of school and program staff, which may help to explain the higher likelihood of sign-ups among some traditionally disadvantaged student groups. Few counselors (8%) reported explicitly targeting a particular racial or ethnic group for sign-ups; rather, a large majority (72%) reported targeting students who were eligible for FRPL. Considering students at their own schools, principal and guidance counselor suggested that those likely to sign the pledge were those who are already “looking beyond high school” and “excited about college.”

4.2 Findings for Research Question 2: How closely do the characteristics that predict sign-ups parallel pre-CBS program predictors of college enrollment?

Table 5 presents a parallel analysis for the college enrollment of the pre-policy cohorts, which allows us to examine the extent to which the factors predicting CBS sign-ups mirror factors predicting college enrollment prior to the program’s introduction. Similar to what we found for predicting CBS sign-ups, we observe a general pattern of decreasing magnitude of the coefficients from the model that is not conditioned (column (1)) to those with either middle school fixed effects or characteristics (columns (4) and (7) respectively), with little difference

between the latter two specifications. In the first column, we find that the disparities among CBS-eligible students mirror those typically found when examining all students (e.g, females, Asian Americans, and gifted students are substantially more likely to enroll in college “on-time”). When estimating our logit specifications, we find a remarkable correspondence between the factors associated with signing the pledge and enrolling in college. The correlation between the marginal effects in the fourth columns of tables 4 and 5 (i.e., the models with middle school fixed effects) is 0.75, while the correlation between the marginal effects shown in the seventh columns of tables 4 and 5 (i.e., the models with middle school characteristics) is 0.69.

The estimated regression lines based on Equation 3 are shown in Figure 2. This figure also shows scatterplots of probabilities of pledging and enrolling in college, using a 1-percent random sample of students. In figure 2, black open circles indicate students in cohort 1, green solid circles indicate cohort 2, and red Xs are for cohort 3. The intercept is highest for cohort 3 reflecting the general increase in the likelihood of signing the pledge. For all three cohorts, the regression lines have a positive slope indicating that those more likely to enroll in college are more likely to sign the pledge. The estimated regression lines are approximately parallel, suggesting little change in this underlying relationship.

The above suggests that program administrators succeeded in raising the probability that all economically disadvantaged students sign the pledge as the CBS program rolled out over the first three years. However, signing up does not appear to be disproportionately increasing among those with a low propensity to go to college in the absence of the CBS program. This raises questions about whether the program is changing college-going expectations. This finding is in line with the ambivalence expressed by some principals and counselors when asked about the extent to which the College Bound program has helped foster a college-going culture at their

school. Although a large majority (77%) of these respondents agreed that the program was fostering such a culture, a sizable minority (23%) qualified their affirmative response, noting that the effects were not universal, but rather, were seen only among eligible students or those who were already motivated. One counselor, who said the availability of the program could “light kids on fire” echoed others in noting the challenge of promoting college-going among middle-schoolers who often “have no sense of the future.” A handful of respondents (13%) stated outright that the program had little to no impact on the culture at their school. As one of those respondents explained, “our goal is to sign up students, not inspire college.” While this may have been true in some schools, it is worth noting that regional officers emphasized that program sign-ups are just the first step. In their view, going forward, the CBS program should devote more attention to students’ actual uptake of the scholarship and success in college.

4.3 Findings for Research Question 3: What do program administrators report doing to encourage student uptake in the program?

With respect to school-level sign-up rates, Figure 3 shows the relationship between a school’s actual sign-up rate and its predicted sign-up rate for the 605 schools in Washington State that have program-eligible 8th grade students. A few things merit note here. First, while the actual and predicted rates are correlated, there is substantial deviation (the raw correlation is 0.40). This result is consistent with our finding above that school fixed effects were significant predictors, controlling for student characteristics. Our qualitative analysis (discussed below) allows us to explore explanations for this variation. It furthermore suggests that there may be gains to be made by targeting resources towards schools with surprisingly low sign-up rates. Second, most schools have actual sign-up rates in 2011-12 that are greater than one would expect based on the behavior of the first three cohorts of students, which is consistent with an improving sign-up rate across cohorts.

Given the improvement in sign-up rates demonstrated by our discussion of Figure 2 and the variation among schools in expected versus actual sign-up rates documented in Figure 3, we examine interview data to determine what activities College Bound administrators believe are most important for the program's success. In sum, regional officers reported that schools' success in signing up students depends upon (1) district-level "buy-in" and support for the program, coupled with a school-level champion who takes "ownership" of the program; (2) counselors or other school staff having access to FRPL data in order to target individual students who are eligible for the program; (3) guidance counseling staff that are not over-burdened with other responsibilities and have good relationships with students; and (4) being in a community or district with a strong college-going culture.

Guidance counselors reported using a variety of approaches to promote the program and encourage sign-ups. The most common activities reported by respondents included individual meetings with students (80%) and parent-teacher conferences (60%); less common were phone calls home (40%), other group approaches (32%), other individual approaches (24%) and classroom approaches (20%); the tactics least commonly reported included school-wide events (12%) and placing scholarship forms in orientation packets (8%) or FRPL application packets (4%).

Guidance counselors have an interest in signing-up as many students as possible to ensure they do not miss any eligible students, and they face little consequence for signing-up ineligible students. It is perhaps not surprising that fully half of the guidance counselors interviewed reported signing students up without checking their eligibility. Respondents at more than a third of schools reported sharing applications with *all* students. Two additional schools previously sent applications to all families, but stopped because of complaints by ineligible

families or because they did not want to promote “false hope.” One school asks every student to turn in a form and lets WSAC verify the eligibility, while at another school, if a parent asks about scholarships, the schools requests that the parent sign the form and sends it to WSAC to verify eligibility. Another school signs up every student who ever qualified for FRPL.

Beyond the work of the counselors themselves, another important component for CBS program success—identified both in the literature and by CBS regional officers—is district support for the program. A third of counselor and principal respondents could identify a district-level “champion” and almost one-fifth reported that their district places accountability requirements on schools’ CBS sign-up performance. Of course, this also shows that most respondents did not report district accountability requirements related to CBS sign-ups.

Reflecting on the program’s progress and results, respondents were not in close agreement about what works, but they did largely concur about primary challenges to the CBS program’s success. Among the various strategies to support the program, respondents most often identified one-on-one conversations with parents (42%) or students (35%) as the most effective approach. Other strategies considered most effective by at least one individual included: classroom approaches, large incentives, persistence, and having a WSAC guest speaker come to the school. The greatest challenge to encouraging sign-ups, identified by more than half of respondents, was getting signed forms back from students. Other challenges included, for instance, unresponsive parents, parents not understanding eligibility requirements, the amount of time required for follow-up, and the fact that many middle-school students are not terribly future-oriented, so college-going is not at the forefront of their minds.

Regional officers generally considered the CBS program to be a success, but also noted several areas where it could be improved. To improve and maintain high sign-up rates,

respondents pointed to two opportunities. First, because district leadership and school champions play such important roles, turnover among these positions is a concern. Regional officers emphasized the need for more systematic approaches, where all school faculty and staff have a role to play in encouraging program participation and sign-up rates serve as part of a school's evaluation and accountability systems. Second, echoing the principals and counselors, there was broad agreement that stakeholders need easier access to better and more timely data to identify eligible students, target them for signing up, and support them as they move toward college enrollment.

Regional officers emphasized that program sign-up is just the first step. They promoted more attention to students' actual uptake of the scholarship and success in college. Yet, maintaining students' and families' awareness of the program and encouraging them to adequately plan and prepare for college presents a different set of issues from encouraging program sign-up. Similarly, if the goal of the program is college completion, students will require additional supports to help them enroll and persist in college.

5. Conclusion

Early commitment pledge programs are fairly new, so it is not surprising that we know relatively little about program effects, and almost nothing about students' decisions to sign up. This is an important gap in the literature since this type of program can only help students if they choose to participate. In this paper we provide the first evidence of the factors that predict the likelihood of students signing Washington's College Bound Scholarship.

We document that while the state has made considerable progress in increasing the number of eligible middle school students signing the pledge, sign-up rates were far below 100% in the early years of the program. This finding conflicts with earlier state reports, suggesting near

universal sign-up rates in many districts, which were based on a snapshot of eligible students rather than all eligible students. The difference between these state reports and the proportion of eligible students that we observe to have signed up may be important as regional officers and guidance counselors working to encourage both CBS sign-ups and college-going might have allocated their efforts differently if they received more accurate information about sign-up rates.

Perhaps unsurprisingly, the individual student characteristics that are associated with signing the pledge are closely aligned with the characteristics that predict whether low-income students matriculate to 4-year colleges. High achieving eligible students, for instance, are both more likely to sign the pledge and are more likely to go to college. This pattern did not change over the first three cohorts of program administration, which calls into question whether the pledge program is changing college expectations, as assumed by the program's theory.

We find a positive correlation between a school's predicted sign-up rate and the school's actual sign-up rates, but the correlation, 0.40, is not overwhelmingly high. This, combined with the fact that schools have lower sign-up rates than were reflected in public reports, suggests it may be beneficial to target resources towards encouraging student sign-ups at schools with surprisingly low sign-up rates. In doing so, we may consider the tactics suggested by program administrators, who agree that individualized approaches are critical for signing up more students and good data are necessary for such implementation.

Notes

1 A previous study performed by the BERC group for the Gates Foundation explored the stratification in college readiness, enrollment, and persistence among pledged CBS students in the first scholarship cohort (Baker et al., 2013). They do not, however, touch on sign-up rates or sign-up rate variation that occurs across the state.

2 The Wisconsin Covenant is not included as eligibility for it is not restricted to economically disadvantaged students and it was discontinued in 2015. Colorado's CollegeInvest Early Achievers Scholarship is not included as the program was closed in 2010. California's "Early Commitment to College" and "SOAR Virginia" are not included in this summary because they are not available in all schools in the state and programmatic details vary across districts.

3 Perna and Leigh (2017) in their typology of promise programs define them as "hav[ing] a primary goal of increasing higher education attainment, promise a financial award to eligible students, have some "place" requirement and focus on the traditional college-age population." Note that this definition doesn't include an element of early commitment.

4 For instance, programs modeled after Georgia's HOPE programs spread from 2 to 13 states from 1993 to 2003 (Dynarski, 2004).

5 Long (2004) notes that four-year colleges in Georgia captured a portion of the scholarship by raising tuition, and thus "reduced the intended benefit of the scholarship and increased the cost of college for nonrecipients" (p. 1045).

6 In Goldhaber et al. (2019), we use difference-in-differences-in-differences specifications and contrast changes in outcomes for students who were eligible in the right grades (e.g., 7th or 8th grade for most cohorts) to those who faced similar economic hardship but were nearly eligible in the wrong grades (e.g., 6th or 9th grade for most cohorts). In preliminary results, we find no statistically significant evidence that Washington's CBS affected the likelihood of high school graduation, high school grades (getting more than a 2.0 is negative and marginally significant in our most recent models), or the likelihood of being in juvenile detention, juvenile rehabilitation, or incarceration as a young adult. Yet, point estimates suggest the program may have cut in half pre-policy gaps between eligible and ineligible youths' likelihoods of being incarcerated as a young adult.

7 WSAC is a cabinet-level agency. For more information on the responsibilities of WSAC see <http://www.wsac.wa.gov/what-we-do>.

8 This figure along with further details are available through <https://www.wsac.wa.gov/sites/default/files/CBS-FAQsForSeniors-2013.pdf>.

9 Students can only use CBS funds at eligible state aid participating private institutions, for more detail on this, see <http://www.readysetgrad.org/eligible-institutions>.

10 The maximum award is based on tuition, service, and activity fees for 15 credits at a public institution, plus a book allowance. For 2014-15, this amount was \$11,904 plus a \$500 book

allowance. Many private institutions offer to cover whatever tuition costs remain after the CBS is applied

11 The fact that the CBS is contingent on family income during a student's senior year and income-eligibility is reassessed in every year of postsecondary schooling, means students can lose CBS scholarship funds if family income rises above the specified threshold. This weakens the clarity of what rewards will follow from signing and fulfilling the pledge, though the increase in the income threshold for qualifying (e.g., from \$39,220 to \$53,000 for a family of four in the first cohort) implies that a great many of those students who initially sign up for the program will be eligible when the time comes to make college-going decisions.

12 For students who attended more than one school in 8th grade, including alternative or secondary programs, we used the school attended for the most days.

13 For example, a 6th grader taking the test given to 7th graders would be considered to be taking the test out of their grade level. WASL scores are set to missing for these students and then imputed as discussed in Appendix B. For 2008-09, observations did not have reporting grades and we assume that the test grade is the same as the student's grade level. The high rates of students taking tests out of their grade level (see Table 2) are driven by students' 10th grade standardized tests used for graduation requirements. These tests can be retaken and, in some instances, taken early. The change in rates between the pre and post policy CBS eras are driven by more students being allowed to take the test early in the pre-policy era and by a change to the math portion of the graduation test in the post-policy era that reduced the number of retakes. When we remove 10th and 9th grades from the out-of-grade level indicator we observe the following rates for the pre-policy era 4.5 percent and 4.9 percent, and in the post-policy era we observe the following rates 5.0 percent, 5.0 percent, and 5.0 percent.

14 Mostly given to students with disabilities.

15 The "incidental parameters" problem that occurs when using fixed effects in a logit model with panel data is not a concern for us as the number of students at each middle school is typically far above the numbers that would yield an incidental parameters problem. In similar situations, Cameron and Trivedi (2005) prefer the term "cluster effects" rather than the more commonly used term "fixed effects", as "fixed effects" are more appropriately used in the context of panel data containing multiple observations of outcomes for a single individual, whereas a cluster effect refers to a common effect occurring for individuals in a cluster, in this case the school. Nonetheless, we follow convention here in using the more familiar "fixed effects" terminology.

16 We also used the number of undergraduates within 10- or 25-miles of the middle school, and these produced qualitatively similar results. See Long & Kennedy (2015) for more information about the effect of college proximity on college enrollment decisions, as well as information on the spatial distribution of Washington's colleges and how that corresponds to the locations of students.

17 In other words, by the end of October 30th following their expected graduation year from high school.

18 We use 7th grade WASL scores in X , rather than 6th grade scores, due to lack of data on 6th grade scores for earlier cohorts. Likewise, we use mean standardized student scores on the 7th grade mathematics WASL as a school characteristics in S_m .

19 We utilize specifications 1b and 2b rather than 1a and 2a (the models with middle school fixed effects) given changes in middle schools that occur between the years in which we are estimating enrollment models and the years in which we are estimating pledge models.

20 Source: <http://www.wsac.wa.gov/>, accessed on February 19, 2016.

21 Source <https://www.wsac.wa.gov/college-bound>, accessed on February 19, 2016. Currently available through <https://web.archive.org/web/20160920020459/http://www.wsac.wa.gov:80/college-bound>

22 Note that a small number of students from the “Pre-Policy” cohorts signed-up. These students may include those who were retained such that they became part of a subsequent “Post-Policy” cohort. We define a student’s cohort given the first cohort in which they are observed – thus retained students are counted as belonging to their pre-retention cohort.

23 Source: Personal communication from Rachelle Sharpe, Ph.D., Senior Director of Student Financial Aid and Support Services, Washington Student Achievement Council, December 3, 2015.

24 In Table 1 we also report a second definition of the sign-up rate, the number who signed the pledge and we identify as “clearly eligible” divided by the number we identify as being “clearly eligible” to participate. This lower sign-up rate ranges from 33.7% to 45.5% across the three cohorts.

25 See, for instance, <http://www.wsac.wa.gov/sites/default/files/2015.10.23.CBS.School.Districts.pdf>. Schools are able to view whether their students have signed the pledge and thus can monitor sign-up rates (Personal communication from Rachelle Sharpe, March 7, 2016); we are unsure of the extent to which they do so.)

26 Community organizations have been engaged by the state to play an active role in helping increase sign-up rates (Power, 2011).

27 2011-12 was the most recent year for which we had data to compute the school’s actual sign-up rate.

28 Note that we need to be cautious in assuming that these groups are disadvantaged in college enrollment conditional on being eligible for the CBS program. Note that 27.2% of all eligible cohort 1 students enrolled in any college within four years after starting 9th grade and these

listed subgroups had similar if not higher college-going rates: 24.0% for eligible Hispanics, 28.4% for eligible African Americans, 23.9% for eligible migrant students, and 24.6% for eligible transitional bilingual students.

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Table 1: Sign-up Rates

| | Expected HS Graduation Year | | | | |
|--|---|---|---|---|---|
| | 2010 | 2011 | 2012 | 2013 | 2014 |
| | Pre-Policy | | Post-Policy | | |
| | 7 th grade in 2004- 05 or 8 th grade in 2005-06 | 7 th grade in 2005- 06 or 8 th grade in 2006-07 | 8 th grade in 2007- 08 or 9 th grade in 2008-09 | 7 th grade in 2007- 08 or 8 th grade in 2008-09 | 7 th grade in 2008- 09 or 8 th grade in 2009-10 |
| (A) Number who signed the pledge | 25 | 234 | 14,176 | 15,143 | 18,802 |
| (B) Number who we identify as "clearly eligible" | 39,218 | 37,450 | 38,659 | 37,519 | 38,491 |
| (C) Number who signed the pledge and we identify as "clearly eligible" | 24 | 216 | 13,037 | 13,943 | 17,524 |
| Sign-up Rate 1: (A)/(B) | 0.1% | 0.6% | 36.7% | 40.4% | 48.9% |
| Sign-up Rate 2: (C)/(B) | 0.1% | 0.6% | 33.7% | 37.2% | 45.5% |
| Sign-up Rate 2 for Puget Sound Counties | 0.1% | 0.6% | 31.0% | 34.5% | 45.4% |
| Sign-up Rate 2 for Other Western Washington Counties | 0.1% | 0.3% | 28.1% | 32.7% | 42.1% |
| Sign-up Rate 2 for Eastern Washington | 0.0% | 0.6% | 41.7% | 44.5% | 48.4% |

Note: "Clearly eligible" defined as a student that was marked as eligible for Free and Reduced Lunch Program at any point during their 7th or 8th grade year (8th or 9th grade for the first Post-Policy cohort).

Table 2: Descriptive Statistics for Quantitative Analysis Sample

| <i>Dependent Variable</i> | Pre-imputation Mean and Standard Deviation | | | | | Number of Observations in Pooled Sample with Non-Missing Data | |
|---|--|--|--|--|--|---|---------------------------------------|
| | Pre-Policy | | Post-Policy | | | Pre-Policy (Two Cohorts Pooled) | Post-Policy (Three Cohorts Pooled) |
| | 7 th grade in 2004-05 or 8 th grade in 2005-06 | 7 th grade in 2005-06 or 8 th grade in 2006-07 | 8 th grade in 2007-08 or 9 th grade in 2008-09 | 7 th grade in 2007-08 or 8 th grade in 2008-09 | 7 th grade in 2008-09 or 8 th grade in 2009-10 | | |
| Signed the Pledge | 0.10% | 0.60% | 33.70% | 37.20% | 45.50% | 76,668 | 114,669 |
| Enrolled in college in 4 years of 9 th grade | 23.60% | 25.70% | 27.20% | Incomplete | | 76,668 | 114,669 |
| <i>Student Characteristics</i> | | | | | | | |
| Reading WASL* | -0.38 (0.96) | -0.36 (0.95) | -0.32 (1.00) | -0.32 (0.98) | -0.32 (0.97) | 66,038 | 969,223 |
| Math WASL * | -0.4 (0.93) | -0.39 (0.94) | -0.37 (0.94) | -0.39 (0.92) | -0.38 (0.90) | 66,102 | 96,375 |
| Took WASL out-of-grade-level | 45.7% | 55.3% | 24.7% | 22.8% | 19.0% | 76,668 | 114,669 |
| Took a modified version of WASL | 8.5% | 8.9% | 8.3% | 9.0% | 8.5% | 76,668 | 114,669 |
| Age in 8 th grade | 14.4 (0.80) | 14.4 (0.50) | 14.4 (0.50) | 14.4 (0.50) | 14.4 (0.50) | 76,668 | 114,669 |
| Female | 48.0% | 48.7% | 48.4% | 48.7% | 48.4% | 76,668 | 114,669 |
| Hispanic | 25.6% | 28.4% | 30.2% | 31.9% | 31.6% | 76,668 | 114,669 |
| Non-Hispanic African American | 7.4% | 7.0% | 6.6% | 6.5% | 6.1% | 76,668 | 114,669 |
| Non-Hispanic Asian | 5.9% | 5.7% | 5.7% | 5.6% | 5.4% | 76,668 | 114,669 |
| Non-Hispanic Hawaiian or Pacific Islander | 0.1% | 0.2% | 0.2% | 0.3% | 0.3% | 76,668 | 114,669 |
| Non-Hispanic Native American or Alaskan | 3.2% | 2.3% | 2.0% | 2.0% | 1.8% | 76,668 | 114,669 |
| Non-Hispanic and More Than One Race | 7.8% | 10.1% | 10.3% | 10.4% | 10.8% | 76,668 | 114,669 |
| Disability | 20.3% | 20.4% | 21.6% | 23.0% | 24.1% | 76,668 | 114,669 |
| Migrant | 7.3% | 7.9% | 8.4% | 9.0% | 8.6% | 76,668 | 114,669 |
| Homeless | 8.0% | 10.3% | 11.5% | 12.6% | 13.6% | 76,668 | 114,669 |
| Gifted (“highly capable”) | 2.5% | 3.9% | 3.9% | 6.1% | 6.2% | 76,668 | 114,669 |
| Receives bilingual services | 13.5% | 16.0% | 18.5% | 21.7% | 23.2% | 76,668 | 114,669 |
| Language spoken at home not English | 22.9% | 25.8% | 28.1% | 30.5% | 31.3% | 76,668 | 114,669 |
| Attends public school part-time | 0.3% | 0.3% | 0.5% | 0.4% | 0.6% | 76,668 | 114,669 |
| Attended 8 th grade in Puget Sound County | 48.7% | 50.1% | 49.6% | 49.4% | 49.3% | 76,668 | 114,669 |
| Attended 8 th grade in Western WA County | 19.6% | 19.1% | 19.5% | 19.9% | 20.3% | 76,668 | 114,669 |
| Attended 8 th grade in Eastern Washington | 31.7% | 30.8% | 30.9% | 30.7% | 30.5% | 76,668 | 114,669 |
| <i>Middle School Characteristics</i> | | | | | | | |
| Average Math WASL* | -0.24 (0.20) | -0.20 (0.17) | -0.21 (0.17) | -0.19 (0.16) | -0.22 (0.16) | 76,651 | 114,650 |
| 8 th Grade fall enrollment | 243 (106) | 238 (101) | 236 (106) | 235 (106) | 233 (105) | 74,916 | 113,251 |
| Percent of student body on FRPL | 47.7 (21.7) | 47.6 (21.4) | 48.5 (21.7) | 50.6 (20.8) | 51.8 (21.1) | 75,874 | 114,247 |
| Undergrad enrollment in a 50-mile radius (standardized across schools within cohorts) | 0.10 (1.01) | 0.16 (1.01) | 0.15 (1.00) | 0.15 (1.00) | 0.15 (1.00) | 76,439 | 114,438 |
| Has a guidance counselor | 90.9% | 92.1% | 93.6% | 94.0% | 92.7% | 76,668 | 114,669 |

Note: Standard deviations are in parentheses. Students are eligible to sign the pledge in 8th or 9th grade for Cohort 1 and 7th or 8th grade for subsequent cohorts. WASL scores are based on 6th grade administration for post-policy cohorts and 7th grade for pre-policy cohorts. * Scores are standardized within test type, test grade, and cohort.

Table 3: Respondent Sample by Region and Predicted Versus Actual Sign-up Rate

| School Characterization | Puget Sound | Remainder of Western WA | Eastern WA | TOTAL |
|--------------------------------|-------------|-------------------------|------------|-------|
| Predictably Low Sign-Up Rate | 1 | 3 | 2 | 6 |
| Surprisingly Low Sign-Up Rate | 2 | 2 | 2 | 6 |
| Typical School | 2 | 2 | 2 | 6 |
| Surprisingly High Sign-Up Rate | 2 | 1 | 0 | 3 |
| Predictably High Sign-Up Rate | 2 | 2 | 2 | 6 |
| TOTAL | 9 | 10 | 8 | 27 |

Notes: Predictably low sign-up schools are in the bottom-20% for both actual and predicted sign-up rates. Surprisingly low sign-up schools are in the bottom-20% for actual sign-up rate while being in the top-20% for predicted sign-up rate. Typical schools are in the middle quintile for both actual and predicted sign-up rate. Surprisingly high sign-up schools are in the top-20% for actual sign-up rate while being in the bottom-20% for predicted sign-up rate. Predictably high sign-up schools are in the top-20% for both actual and predicted sign-up rates.

Table 4: Marginal Effects of Student and School Characteristics Signing the Pledge

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|----------------------------------|--------|-----|---------------------|--------|-----|---------------------|--------|-----|
| | Y = Signed the Pledge | | | | | | | | |
| | Estimated on Post-Policy Cohorts | | | | | | | | |
| | Raw Differences | | | Logit Model with | | | Mixed Effects Logit | | |
| | Not Conditioned on | | | Middle School Fixed | | | Model with School | | |
| | Other Characteristics | | | Effects | | | Characteristics | | |
| <i>Student Characteristics</i> | | | | | | | | | |
| Math WASL (Standardized) | .049 | (.002) | *** | .045 | (.003) | *** | .044 | (.003) | *** |
| Reading WASL (Standardized) | .050 | (.002) | *** | .029 | (.003) | *** | .027 | (.003) | *** |
| Took WASL out-of-grade-level | -.021 | (.003) | *** | .007 | (.004) | * | .013 | (.004) | *** |
| Took a modified version of WASL | -.085 | (.005) | *** | -.017 | (.006) | *** | -.016 | (.007) | ** |
| Age in 8 th grade | -.035 | (.003) | *** | -.021 | (.003) | *** | -.020 | (.002) | *** |
| Female | .073 | (.003) | *** | .057 | (.003) | *** | .056 | (.003) | *** |
| Hispanic | .089 | (.003) | *** | .016 | (.004) | *** | .016 | (.005) | *** |
| Non-Hispanic African American | .062 | (.006) | *** | .080 | (.006) | *** | .081 | (.008) | *** |
| Non-Hispanic Asian | .098 | (.006) | *** | .050 | (.007) | *** | .054 | (.005) | *** |
| Non-Hispanic Hawaiian or Pacific Islander | -.102 | (.027) | *** | -.070 | (.027) | *** | -.073 | (.024) | *** |
| Non-Hispanic Native American or Alaskan | -.120 | (.010) | *** | -.060 | (.012) | *** | -.057 | (.012) | *** |
| Non-Hispanic and More Than One Race | -.019 | (.005) | *** | .022 | (.005) | *** | .020 | (.005) | *** |
| Disability | -.091 | (.003) | *** | -.016 | (.005) | *** | -.021 | (.004) | *** |
| Migrant | .149 | (.005) | *** | .029 | (.006) | *** | .031 | (.008) | *** |
| Homeless | -.027 | (.004) | *** | -.012 | (.004) | *** | -.016 | (.004) | *** |
| Gifted (“highly capable”) | .129 | (.006) | *** | .082 | (.006) | *** | .077 | (.009) | *** |
| Receives bilingual services | .115 | (.004) | *** | .036 | (.005) | *** | .028 | (.006) | *** |
| Language spoken at home not than English | .115 | (.003) | *** | .050 | (.005) | *** | .049 | (.006) | *** |
| Attends public school part-time | -.105 | (.020) | *** | -.006 | (.022) | | -.009 | (.021) | |
| Attended 8 th grade in Remainder of Western WA | -.055 | (.004) | *** | | | | -.026 | (.020) | |
| Attended 8 th grade in Eastern Washington | .087 | (.003) | *** | | | | .060 | (.023) | ** |
| <i>Middle School Characteristics</i> | | | | | | | | | |
| Average Math WASL (Standardized) | | | | | | | -.001 | (.021) | |
| 8 th grade fall enrollment | | | | | | | .000 | (.000) | |
| Percent of student body on FRPL | | | | | | | .001 | (.000) | *** |
| Undergrad enrollment in a 50-mile radius (Std.) | | | | | | | .040 | (.016) | ** |
| Has a guidance counselor | | | | | | | .029 | (.020) | |
| McFadden’s Pseudo-R ² | | | | .116 | | | .046 | | |
| Number of observations | | | | 114,193 | | | 114,669 | | |

Note: Standard deviations are in parentheses. WASL scores are based on 6th grade administration for post-policy cohorts and 7th grade for pre-policy cohorts. "Raw Differences" are computed by an ordinary least square regression of the outcome on the student characteristic (with no other controls). ***, **, and * denote two-tailed *p*-values that are less than or equal to 0.01, 0.05, and 0.10, respectively.

Table 5: Marginal Effects of Student and School Characteristics on Enrolling in College

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|--|--------|-----|---------------------|--------|-----|---------------------|--------|-----|
| | Y = Enrolled in any college within 4 years of starting 9 th grade | | | | | | | | |
| | Raw Differences | | | Logit Model with | | | Mixed Effects Logit | | |
| | Not Conditioned on | | | Middle School Fixed | | | Model with School | | |
| | Other Characteristics | | | Effects | | | Characteristics | | |
| <i>Student Characteristics</i> | | | | | | | | | |
| Math WASL (Standardized) | .157 | (.002) | *** | .092 | (.003) | *** | .092 | (.004) | *** |
| Reading WASL (Standardized) | .146 | (.002) | *** | .068 | (.003) | *** | .068 | (.003) | *** |
| Took WASL out-of-grade-level | .057 | (.03) | *** | .087 | (.003) | *** | .085 | (.005) | *** |
| Took a modified version of WASL | -.163 | (.005) | *** | -.016 | (.009) | * | -.016 | (.009) | * |
| Age in 8 th grade | -.045 | (.002) | *** | -.039 | (.003) | *** | -.039 | (.003) | *** |
| Female | .092 | (.003) | *** | .059 | (.003) | *** | .059 | (.003) | *** |
| Hispanic | -.032 | (.004) | *** | -.030 | (.005) | *** | -.028 | (.005) | *** |
| Non-Hispanic African American | -.006 | (.006) | | .061 | (.006) | *** | .064 | (.008) | *** |
| Non-Hispanic Asian | .225 | (.007) | *** | .123 | (.006) | *** | .141 | (.010) | *** |
| Non-Hispanic Hawaiian or Pacific Islander | -.140 | (.044) | *** | -.076 | (.056) | | -.078 | (.048) | |
| Non-Hispanic Native American or Alaskan | -.104 | (.009) | *** | -.069 | (.011) | *** | -.065 | (.012) | *** |
| Non-Hispanic and More Than One Race | -.064 | (.005) | *** | -.030 | (.006) | *** | -.030 | (.006) | *** |
| Disability | -.169 | (.004) | *** | -.072 | (.006) | *** | -.067 | (.005) | *** |
| Migrant | -.005 | (.006) | | .006 | (.007) | | .009 | (.008) | |
| Homeless | -.136 | (.005) | *** | -.117 | (.006) | *** | -.103 | (.005) | *** |
| Gifted (“highly capable”) | .335 | (.009) | *** | .165 | (.008) | *** | .190 | (.012) | *** |
| Receives bilingual services | -.031 | (.004) | *** | -.011 | (.006) | * | -.011 | (.006) | * |
| Language spoken at home not English | .039 | (.004) | *** | .050 | (.005) | *** | .051 | (.007) | *** |
| Attends public school part-time | -.043 | (.030) | | .061 | (.031) | * | .043 | (.037) | |
| Attended 8 th grade in Remainder of Western WA | -.004 | (.004) | | | | | .046 | (.014) | *** |
| Attended 8 th grade in Eastern Washington | .021 | (.003) | *** | | | | .070 | (.014) | *** |
| <i>Middle School Characteristics</i> | | | | | | | | | |
| Average Math WASL (Standardized) | | | | | | | .071 | (.025) | *** |
| 8 th grade fall enrollment | | | | | | | -.000 | (.000) | |
| Percent of student body on FRPL | | | | | | | -.001 | (.000) | *** |
| Undergrad enrollment in a 50-mile radius (Std.) | | | | | | | -.021 | (.010) | ** |
| Has a guidance counselor | | | | | | | .036 | (.012) | *** |
| McFadden’s Psuedo-R ² | | | | .146 | | | .117 | | |
| Number of observations | | | | 75,785 | | | 76,668 | | |

Note: Standard deviations are in parentheses. WASL scores are based on 6th grade administration for post-policy cohorts and 7th grade for pre-policy cohorts. "Raw Differences" are computed by an ordinary least square regression of the outcome on the student characteristic (with no other controls). ***, **, and * denote two-tailed *p*-values that are less than or equal to 0.01, 0.05, and 0.10, respectively. Models are estimated on pre-policy cohorts and the outcome for enrolling in college considers on-time college enrollment at any college.

Figure 1: Sign-up Rates According to the Washington Student Achievement Council

8/23/2013

| Cohort | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Total Sign-Ups By Academic Year |
|-------------------------------------|---------------|---------------|---------------|---------------|---------------|----------------------|----------------------|------------------------------------|
| Expected Grad Year | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | |
| Eligible Students | 28,093 | 28,600 | 29,856 | 30,549 | 31,923 | 36,394 | 36,208 | |
| Academic Year 07-08 | 8 | 7 | | | | | | |
| Complete | 9,062 | 6,199 | | | | | | 15,261 |
| Academic Year 08-09 | 9 | 8 | 7 | | | | | |
| Complete | 6,885 | 9,871 | 11,139 | | | | | 27,895 |
| Academic Year 09-10 | | | 8 | 7 | | | | |
| Complete | | | 9,764 | 12,356 | | | | 22,120 |
| Academic Year 10-11 | | | | 8 | 7 | | | |
| Complete | | | | 11,042 | 13,269 | | | 24,311 |
| Academic Year 11-12 | | | | | 8 | 7¹ | | |
| Complete | | | | | 12,003 | 16,238 | | 28,241 |
| Academic Year 12-13 | | | | | | 8¹ | 7¹ | |
| Applied | | | | | | 14,770 | 19,025 | 33,795 |
| % of Total Eligible | 57% | 56% | 70% | 77% | 79% | 85% | 53% | |
| Total Sign-up By Cohort Year | 15,947 | 16,070 | 20,903 | 23,398 | 25,272 | 31,008 | 19,025 | 151,623 |

1. Preliminary Numbers. Includes incomplete applications.



Source: Personal communication from Rachelle Sharpe, Ph.D., Senior Director of Student Financial Aid and Support Services, Washington Student Achievement Council, August 23, 2013

Figure 2: Relationship Between Probability of Enrolling in College and Probability of Signing the Pledge

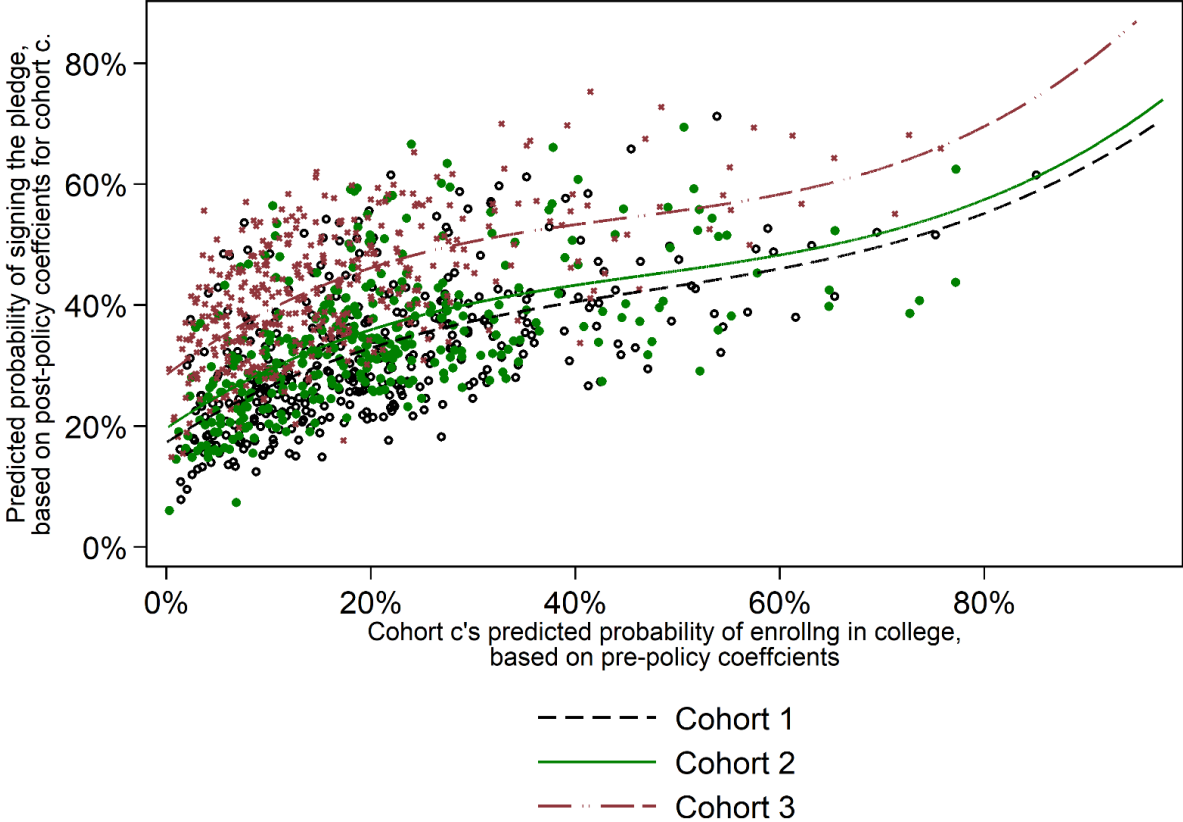
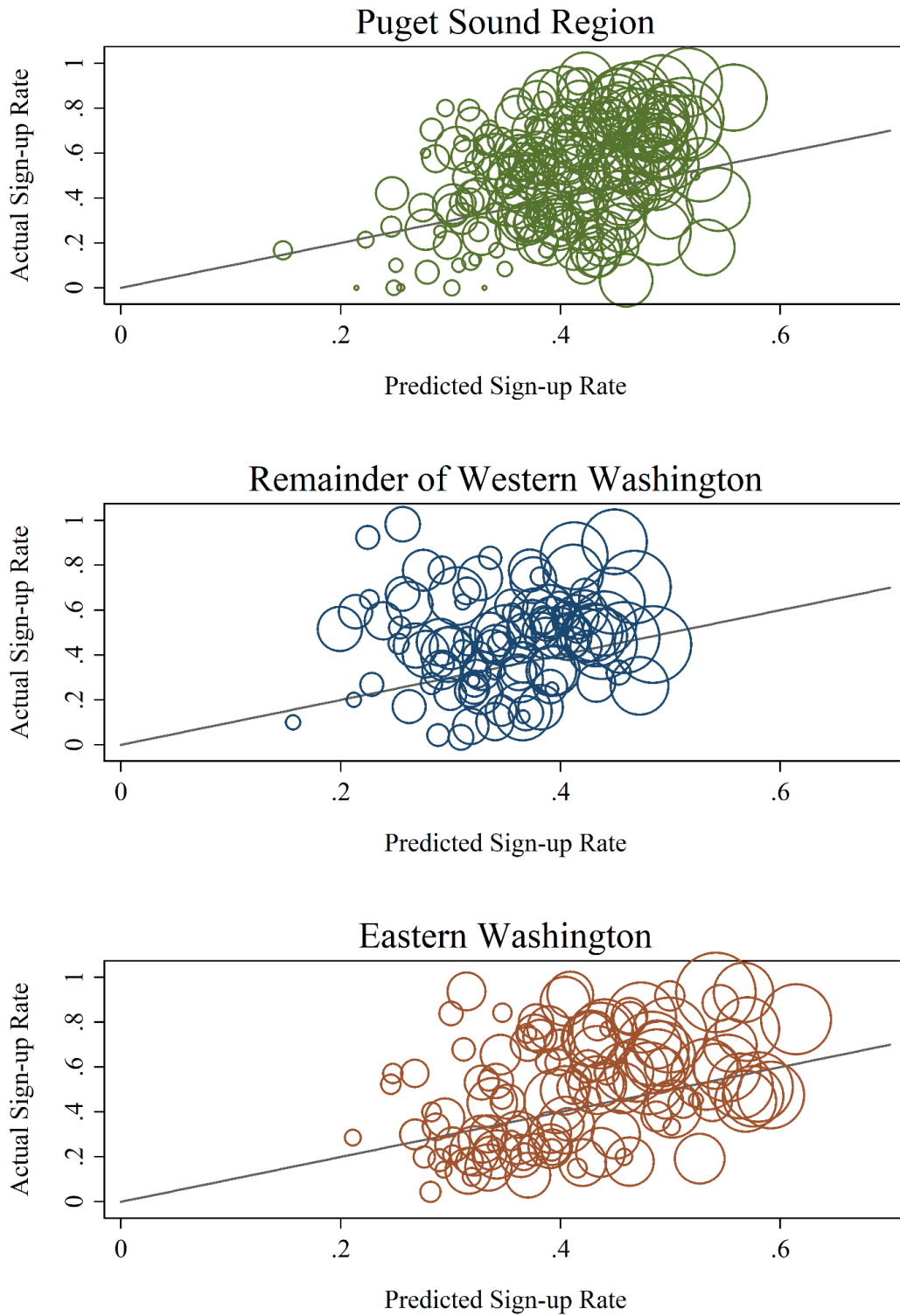


Figure 3: Correspondence of Schools' Predicted and Actual Sign-Up Rates, by Region



Marker size is proportional to number of CBS-eligible students

Appendix A: Details About the College Bound Scholarship and Key Differences from Other State Programs

There is no financial cost for the student to sign up for CBS in middle school. To sign up for the scholarship program, eligible 7th, 8th, or 9th graders (the first cohort of students was eligible to sign the pledge in 8th and 9th grades and later cohorts were eligible to sign in the 7th and 8th grades), along with their parent or legal guardian, must sign the pledge form. The form can be given to the student at school, mailed home, or can be printed from the College Bound website (College Bound Scholarship Rules, 2010). After signing the pledge, students can turn their completed forms in to schools who will then pass them along to WSAC, or the forms may be mailed directly to WSAC. Eligible students have until June 30th of their 8th grade year to submit a completed form. The method of publicizing the CBS opportunity is largely left to the discretion of schools and school districts, with support from WSAC through the work of their contracted regional officers. Regional officers are hired through Washington College Access Network, a subsidiary of the College Success Foundation, who holds a contract with OSPI for program outreach activities. The research team interviewed all ROs working at the time data were collected. Heterogeneity in communication may affect whether students know about the program, whether they choose to sign up, and whether they fully understand the program.

A requirement for participation in the CBS program is that students sign the following pledge in their final year of eligibility (a sample application with the pledge below can be found at https://www.wsac.wa.gov/sites/default/files/CBS_12-13_Application_updated.pdf):

“Yes, I am College Bound! I pledge that I will:

- *Graduate with a cumulative high school grade point average of 2.0 or higher [on a 4.0 scale].*

- *Be a good citizen in school and in my community, and not be convicted of a felony while in high school.*
- *Apply for financial aid by completing the FAFSA [Free Application for Federal Student Aid] in a timely manner when I apply for college.”*

The language surrounding the CBS implies a contractual bond between the student and the state. The “College Bound Scholarship Program... promises annual college tuition and a small book allowance”³⁰. Moreover, given that the student is required to do well in school, be a good citizen, and not commit a felony, it appears that it would be politically hard to break the promise if the student does these things. As State Representative Reuven Carlyle noted, the state has “a moral responsibility to fund [the CBS]. There's no way we can break that social contract” (Long, 2012). As a result, these types of early commitment programs may bind future legislatures to fund the programs given the promise of funding. These kinds of pledge policies may be appealing to legislatures given their transparency to students and the ability of current legislatures to bind the actions of future legislators.

Appendix Table 1 outlines the similarities and differences between the CBS and early commitment pledge programs operating in Indiana and Oklahoma. Two key programmatic differences distinguish Washington’s program. First, until recently, the programs in Indiana and Oklahoma had no income requirement at the time that the student attended college. Heller (2006) noted, “[t]he distinguishing characteristic of these two programs from that of other publicly funded aid programs is that once students are accepted into the program while in middle school, they will not be removed even if their family’s economic circumstances change” (p. 1726). The recently adopted cap in Oklahoma of \$100,000 creates less uncertainty, as few families’ incomes are likely to rise from less than \$50,000 to more than \$100,000 during the student’s high school

years. A second distinguishing feature is that the programs in Indiana and Oklahoma require students to take specific college-appropriate coursework while in high school to be eligible for the scholarship aid. The CBS, by contrast, places no coursework restrictions and merely has a relatively weak 2.0 grade point average as its only performance requirement.³¹

Appendix B: Further Details on Data and Analytic Sample

Our analytic sample consists of 191,337 student observations. To get to this sample we dropped students in foster care, foreign exchange students, observations with missing ID codes, observations with multiple IDs and irreconcilable birthdates, and students who were not identified in a school in 8th grade. The CBS automatically enrolls all foster care students into the scholarship if they are in grades 7-12, thus signing the pledge is not a relevant choice for this group. Foreign exchange students (i.e., those in formal exchange programs, not including undocumented immigrants) are dropped from the analysis as they are not eligible for the program. Observations with missing ID codes reflect pledges that could not be connected to a student in our administrative data. Students with irreconcilable birthdates reflect multiple students who, mistakenly, share an ID code and could not be disentangled. Students who were not identified in a school in 8th grade were dropped because they could not be included in our regression analysis that included school characteristics or school fixed effects. These restrictions reduce the number of unique student observations from 443,315 to 414,959. The final restriction i.e. limiting to CBS eligible students, brings the analytic sample to 191,337 eligible youth.

As noted in the body of the text, it is not possible with existing administrative data to construct a perfect measure of whether the student is eligible to sign up for the CBS in middle school. This is due to the data not having information on students who may be income eligible despite not receiving FRPL, SNAP, FDPIR, or TANF. Washington does not have a state income tax, so we cannot identify eligibility directly from income tax records. However, by 2008-09, all school districts in the U.S. 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 SNAP and FDPIR recipients after 2008-09 should be

coded as FRPL-eligible in our administrative data. In Washington in 2007-08, 76 percent of children in SNAP households were directly certified for free school meals (USDA, 2008).

Washington began direct certification of children in TANF households in 2003-04 (Neuberger, 2006).

The share of students who are CBS-eligible, but not known to be FRPL-eligible appears to be modest. Specifically, by using data on all 12 to 14 year olds (3,245 youth) in families included in the first three waves of the 2008 Survey of Income and Program Participation (SIPP), we find that the share of SIPP youth who meet one of the eligibility criteria for the CBS yet who are only eligible due to income (i.e., who are not FRPL, SNAP, or TANF recipients or in foster care) is only 13.3%. If we restrict the analysis to Washington youth (only 93 observations), we find a comparable rate of youth eligible for the CBS based solely on family income (17.7 percent), which is not significantly different than the full sample given the small sample size.

Additionally, recipients of the FDPIR are directly certified as eligible for free lunches, but SIPP does not collect data on FDPIR participation. Since we will capture these youth as FRPL-eligible from school administrative data, our estimate of the fraction that we will miss, 13.3 percent, is an upper-bound estimate. Nationally (and in Washington) we estimate (based on data in Usher, Shanklin, & Wildfire [1990], Snyder & Dillow [2011], and USDA [2012]) that 0.05 percent (0.10 percent in Washington) of 8th grade students participate in FDPIR.

Nevertheless, the absence of income-only eligible students in our analysis may bias our estimates of the sign-up rates upwards since these students may have a lower responsiveness to the CBS program than the students we correctly identify as eligible. There are two reasons for this conclusion. First, such students may be more likely to come from families who do not feel comfortable seeking government aid or are from families who are generally unaware of available

need-based aid programs (as evidenced by the fact that they are not enrolled in FRPL, SNAP, FDPIR, or TANF). If so, and if these preferences and/or lack of knowledge apply to college financial aid, then this group might be less responsive. Second, based on our analysis of SIPP youth, income-only eligible students appear to come from families with lower income and higher poverty than students that we correctly identify as eligible. (Those who we identify as eligible have higher median family incomes [\$30,280 versus \$25,711], larger mean family sizes [4.7 versus 4.1], and higher income-to-poverty threshold ratios [1.31 to 1.24] than those who are foster / income-eligible-only, based on these SIPP youth). Such lower-income families are likely to have greater amounts of support from Pell Grants and State Need Grants, and thus would receive smaller amounts of net financial aid support from the CBS program. If they receive relatively less funding from the CBS, they might also be expected to be less responsive to the program.

Outside of questions about which data may be missing there may be differences in how sign-up rates are calculated due to timing. As we note in the body of the text, WSAC used the number of FRPL students in 7th grade as recorded in October of the corresponding school year to determine CBS eligibility for their sign-up rates calculation. The result is an early snapshot of eligibility that does not include students who are added to FRPL throughout the remainder of the 7th grade or at any point during 8th grade. There were 30,521 7th graders denoted FRPL eligible in October 2005-06, while during the remainder of that school year, an additional 3,540 7th graders were denoted FRPL eligible after October (having not been eligible in October). In the following school year an additional 5,238 students were denoted as eligible in 8th grade that had not been eligible at any point the year before. These 8,778 FRPL-eligible students represent roughly 20% of the total number of CBS eligible students for that cohort. The difference between

monitoring a snapshot of eligibility and the two-year period of eligibility explains the differences between our calculated denominator, and subsequently, the overall sign-up rates.

It is also important to note that there is no auditing mechanism to prevent parents and students from signing up and incorrectly claiming to be income-eligible for the CBS. Washington State does not have a state income tax system that could be used to verify income. Schools and districts under pressure to meet the implied standard of 100% sign-up have little incentive to question students who have completed the forms, including those who may not in fact be eligible. At the same time, the State and the schools cannot know when they have reached 100% sign-up because they cannot know what the denominator is for any school given the lack of administrative data that is needed to verify eligibility.

While Table 1 displays the variations in sign-up rates by cohort, Table 2 displays summary statistics by policy period. The last two columns of Table 2 show the number of non-missing observations for each variable. Approximately 15% of students are missing their own WASL scores, and there is a small amount of missingness for school characteristics, which occurs when a middle school's 8th grade class is exceptionally small or is unreported in OSPI report card data. We impute missing variables with a two-step process. First, we use single imputations to impute missing school characteristics linearly based on values of observed school characteristics. A middle school's average 6th grade test score (z-score) for their 8th grade class is calculated from students' individual test z-score. If a student's 6th grade test score is missing, it is filled in with the z-score from the test that is closest in time to the missing score (i.e. 5th grade or 7th grade z-score), with priority given to the earlier test score. If a middle school's average 6th grade test score is still missing, it is imputed using the steps listed above. Second, we

use multiple imputation to fill-in all remaining school characteristics and WASL scores. We create ten multiply imputed datasets and combine the results using Rubin's Rules (Rubin, 1987).

Appendix C: Interview Questions

Regional Officer Interview Questions

Background (5 min)

I'd like to start with some questions about your background and role.

- How long have you been working in your current role as a College Bound regional officer with the College Success Foundation?
- What did you do before working for the College Success Foundation? How do your prior experiences relate to the work you're doing for the College Success Foundation?
- Besides the College Bound Scholarship program, do you work with other college or career programs? *[If yes]* How much of your time is dedicated to the College Bound Scholarship program versus these other programs?
- To what extent do you interact with the other College Bound regional officers? *[Probe if needed]* When and how do you communicate? What topics do you typically cover?

1. Work with schools and districts in the region (5-10 min)

Now I'd like to ask about your work with schools and districts to promote the College Bound Scholarship program.

- How many middle schools are there in your region? How many districts? (It's okay to estimate if you don't have the exact numbers on hand.)
 - How many of these do you work with?
 - Do you work with any high schools? *[If yes]* About how many? And of how many are there in the region?
 - With so many schools in your region, it might be difficult to get to each one. How do you determine which schools or districts to prioritize?
- How do you normally interact with these schools and districts?
 - Who is your main point of contact with the districts? With the schools?
 - What, if any, **staff trainings** do you conduct with schools or districts? *[If offer trainings]* Can you please describe these trainings? Are they with individuals or groups? Where and when are they held? Who attends? What topics are covered? How do you encourage people to come?
 - What kinds of **workshops or events** do you plan or host with schools or districts to promote the program or encourage students to participate? *[If offer events]* Can you please describe these workshops or events? Where and when are they held? Who attends? What topics are covered? How do you encourage people to come?
 - To what extent do you work with schools or districts to **advise eligible students or their families** about the program? *[If offer advising:]* Can you please describe how this works? How do you reach people? What topics do you cover when you advise them?
 - What other activities do you use to engage schools or districts with the program and get students to sign up for it? *[If offer other activities]* Please describe them.

- Of all the ways you work with schools and districts what approaches do you think have been most successful in getting students to sign up for the College Bound Scholarship program?
- What have been the greatest challenges in working with schools or districts?
- To what extent do you find these challenges are particular to specific districts or types of schools? *[If so]* What do you think makes this so?

2. Work with partner organizations (5-10 min)

Now I'd like to ask some questions about the other kinds of organizations you work with in the region.

- Beyond districts and schools, what community organizations do you partner with to encourage students to participate in the College Bound Scholarship program?
 - How did you develop these partnerships?
 - Do you (or the districts or schools) have any formal agreements in place with these partner organizations—for example, contracts or memoranda of understanding?
- How often and in what ways do you interact with these partner organizations?
- What do these organizations do to encourage students to participate in the College Bound Scholarship program?
 - How do they get students to sign up for the program?
 - How do they help students to prepare for college?
 - What else do they do to promote participation in the program?
- To what extent do you think these partner organizations have helped increase the number of eligible students who sign-up for the College Bound Scholarship?

3. College awareness and college-going culture (5-10 min)

Now I'd like to ask you some questions about efforts to build college awareness and a college-going culture in your region.

- What are districts, schools, or individual school staff and faculty that you work with in the region doing to support:
 - General college awareness?
 - Understanding of college readiness?
 - Understanding of how to pay for college?
- What do the community partner organizations that you work with do to support:
 - General college awareness?
 - Understanding of college readiness?
 - Understanding of how to pay for college?
- If you had to give a grade from A to F, how would you rate the general college-going culture in your region? On the same scale, how would you rate each of the following:
 - General college awareness?
 - Understanding of college readiness?
 - Understanding of how to pay for college?
- How much variation do you see in the college-going culture across the various middle schools in your region? *[If appropriate]* What about across the high schools?
- What do you think causes this variation?

- What do you think schools, districts, and partner organizations do particularly well to promote a college-going culture in the region?
- In what areas do you think they could do more to promote the college-going culture?
- How has the availability of the College Bound Scholarship helped to foster a college-going culture in your region?

4. Student participation (5-10 min)

Let's switch gears and talk about student participation in the College Bound Scholarship program.

- How do you identify students who might be eligible for the program?
 - What information do you receive on eligible students? How do you receive this information?
 - What do you do with the information when you get it?
- We understand that WSAC provides materials (including a “toolbox”) to help middle school counselors encourage and track students' participation in the program. Do you ever use these WSAC materials? *[If yes]* Of all the materials available, which do you think are the most useful? Why?
- What proportion of eligible students in your region do you think sign up? (It's okay to estimate if you don't have the exact figures.)
- How does the sign-up rate vary across middle schools and districts within your region? What do you think causes this variation?
- How has the sign-up rate changed over time? What do you think influenced the change?
- What kinds of students do you think are most likely to sign up? Why do you think these students are more likely to sign up than others?
- What kinds of students are least likely to sign up? Why do you think these students are less likely to sign up?
- In your opinion, what works best to encourage students to sign up for the program?
- What are the biggest challenges to getting students to sign up?

5. Program progress and results (5-10 min)

In this last section, I'd like to ask you about your impressions of the progress of the College Bound Scholarship program over time and how well it achieves its goals of improving low-income students' college preparation and enrollment.

- In general, how well known do you think the College Bound Scholarship is among the people you work with in your region?
- For each of the following types of people, I'd like you to rate how well known the program is on a scale of 1 to 10, with 1 being completely unknown and 10 being completely known,:
 - Middle school principals?
 - Middle school guidance counselors?
 - Other middle school faculty and staff?
 - High school principals?
 - Students and their families?
 - Community organizations that work with eligible youth?

- In your experience, how has knowledge of the program changed over time? What do you think influenced these changes?
- In what ways do you think the College Bound Scholarship actually influences students' behavior while they're still in middle or high school?
 - To what extent do you think it makes them prepare better for college? Does it change the sequence of courses they take?
 - How about encouraging them to stay out of trouble during adolescence?
 - To what extent does it change students' beliefs about their own ability to go to college?
 - To what extent does it change their college aspirations?
 - What other ways do you think it might change students' behavior?
- What is your sense of how effective the program is at getting students to enroll in college who might not otherwise have done so?
 - To what extent do you think it changes the type of college students enroll in?
 - To what extent do you think it helps them to persist in college?
 - What factors do you think make it effective?
 - What factors do you think limit the program's success?
- What other ways might the state use its resources to get low-income middle school students to succeed in college?

Wrap-Up (less than 5 min)

- What other things do you think we should know about your efforts or the efforts of the organizations you work with to encourage students to participate in the College Bound Scholarship program?
- Do you have any questions for us?

Principal/Guidance Counselor Interview Questions

Background

- A. To begin, how long have you been working in your current role as [principal/guidance counselor] at your school?
- B. What are your **main** responsibilities specifically with respect to the College Bound Scholarship program?

Promoting the College Bound Scholarship Program (15-20 min)

In this first section we'll discuss activities to promote the College Bound Scholarship program at your school.

- **[PRINCIPALS]** What are the **main** activities used at your school to promote the program and encourage students to sign up for it? We don't need to hear about everything, just those activities you consider most important to the program's success.
- **[PRINCIPALS]** Who is the **primary individual** responsible for conducting these activities?
 - Is working to support the College Bound program part of their expected job duties?

- Roughly how much time do you expect them to spend during a year with work related to this specific program, as a percentage of their FTE?
- What resources (financial or others) are available to help them promote the program or get students to sign up?
- What individual do you consider to be **most** accountable for the program's success?
- ***[COUNSELORS]*** What are the main activities you use to promote the program and encourage students to sign up for it? We don't need to hear about everything, just those activities you consider most important to the program's success.
 - Do you consider working to support the College Bound program part of your expected job duties?
 - Roughly how much time do you spend during a year with work related to this specific program, as a percentage of your FTE?
 - What resources (financial or others) are available to help you promote the program or get students to sign up?
 - Of all your job duties, how would you rank the relative importance of your work with the College Bound program? Is it less important, about the same, or more important than **most** of your other duties?
- To what extent are other faculty and staff expected to help promote the program and get eligible students to participate?
 - Is it part of anyone else's expected job duties?
 - What resources (financial or others) are available to help them promote the program or get students to sign up?
- In your view, what **individual** is the strongest champion for the College Bound program at your school?
 - What makes them an effective champion for the program?
 - What could your school or district do to help them be even more effective?
- What organizations in the community are **most important** to the program's success at your school?
 - Do any of these partners actually sign students up for the program? What else do they do to help increase the number of eligible students who sign up for the College Bound Scholarship?
 - Does the school (or the district) have any formal agreements in place with these partner organizations—for example, contracts or memoranda of understanding?
- What are the main things the **district** does to support the program's success at your school?
 - Does the district place any accountability requirements on you or your school with respect to your College Bound program performance?
 - Is there anyone at the district offices that you consider to be a champion for the program? If so, who (ideally, you can tell me their role – not their name)?

Targeting eligible students to encourage participation (5-10 min)

Let's switch gears and talk about how you identify and target eligible students for participation in the College Bound Scholarship program.

- C. What proportion of eligible students in your **school** do you think sign up? (It's okay to estimate if you don't have the exact figures.)
1. How has your school's sign-up rate changed over time – would you say it's decreased, stayed about the same, or increased??
 2. What do you think influenced the change?
- D. Do you receive information on sign-up rates from WSAC?
1. **[IF YES re WSAC and MORE THAN 1 MS in district]** What is your **district's** current sign-up rate according to WSAC?
 2. **[IF NO re WSAC and MORE THAN 1 MS in district]** Do you know your district's current sign-up rate? If so, about what is it?
- E. **[COUNSELORS]** When promoting the program, to what extent do you focus on specific types of eligible students?
1. Which types of students do you focus on?
 2. How do you decide which types of students to focus on?
 3. Do you ever ask students—whether individuals or in groups—to sign the pledge without first knowing if they are eligible?
- F. **[COUNSELORS]** Do you receive lists of eligible students from WSAC, the district, or another source?
1. **[IF YES]** How and when do you receive this information?
 2. **[IF YES]** Is there anything else you do to identify eligible students (besides use data from WSAC, the district, or another source)?
 3. **[IF NO]** How do you identify students who might be eligible for the program?
- G. **[COUNSELORS]** When and how often during the school year do you reach out to eligible students to encourage them to sign up for the program?
1. What does the typical sign-up process look like?
 2. Where is the process most likely to break down?
- H. **[COUNSELORS]** What are the characteristics of students who are most likely to sign up? Why do you think these students are more likely to sign up than others?
- I. **[COUNSELORS]** We understand that WSAC provides materials (including a “portal”) to help middle schools encourage and track students' participation in the program. Do you ever use these WSAC materials?
1. **[IF YES]** Of all the materials available, which do you think are the most useful? Why?
 2. **[IF NO]** Why don't you use these materials?
 3. What could improve the WSAC materials?
- J. **[COUNSELORS]** About what percentage of the time would you say you use the electronic (versus paper) applications provided by WSAC?

Program progress and results (5-10 min)

In this last section, I'd like to ask you about your impressions of the progress of the College Bound Scholarship program over time and how well it achieves its goals of improving low-income students' college preparation and enrollment.

- K. To what extent do you think students and families understand the program's eligibility requirements? How has this changed over time – would you say it's decreased, stayed about the same, or increased?

- L. To what extent do you think students and families trust that the program will actually be available to pay for college costs when they need it? How has this changed over time – would you say it's decreased, stayed about the same, or increased?
- M. Of all the things your school does to encourage students to sign up for the College Bound Scholarship program, what approaches do you think have been **most effective**?
- N. What have been the **greatest challenges** to getting students to sign up for the program?

Wrap-Up (less than 5 min)

Before we wrap up, I'd like you to step back and think about the broader college going culture at your school.

- If you had to give your school a grade from A to F, how well do you think your school promotes...
 - Students' general college awareness?
 - Students' understanding of college academic readiness?
 - Students' and families' understanding of how to pay for college?
- What average grade do you think your school would have earned on these items ***[IF THERE MORE THAN 4 YRS]*** ...in the first year of the program (2012-13 school year)? / ***[IF THERE LESS THAN 4 YRS]*** ...in the first year you worked there?
- To what extent has the availability of the College Bound Scholarship helped to foster the college-going culture at your school?
- What other things do you think we should know about your or your school's efforts or the efforts of the people you work with to encourage students to participate in the College Bound Scholarship program?
- Do you have any questions for us?

Appendix Table 1: Washington State’s Program and Other State Programs

| | Indiana 21st Century Scholars Program | Oklahoma Promise | Washington College Bound Scholarship |
|---|--|--|--|
| Year Started | 1990 | 1992 | 2007 |
| <i>When the Student Signs the Pledge</i> | | | |
| Time of commitment | 6 th , 7 th or 8 th grade | 8 th , 9 th and 10 th grade | 7 th , 8 th grade |
| Income Requirement When the Pledge is Signed? | No (Foster care); otherwise, Yes (Varies by household size, equivalent to eligibility for FRPL). | Yes (Family income of \$50,000 or less at commitment. Special income provisions apply to children adopted from certain court-ordered custody and children in the custody of court-appointed legal guardians) | No (Identified by state as eligible for FRPL, family receives basic food/TANF benefits, or currently in foster care or a dependent of the state); otherwise, Yes (Varies by household size, equivalent to eligibility for FRPL). |
| <i>When the Student Goes to College</i> | | | |
| Income Requirement to Qualify for Scholarship? | No (Class of 2015 and Earlier); Yes (Class of 2018 and Later); Depends on when enrolled in the program (Class of 2016, 2017) | Yes, family income of \$100,000 or less at the time the student begins college. | Yes, less than 65% of the state’s Median Family Income (\$53,000 for a family of four in 2012-13) |
| GPA Threshold | 2.0 (Class of 2014 and earlier); 2.5 (Class of 2015 and later) | 2.5 | 2 |
| College-bound coursework requirement? | Yes | Yes | No |
| Requires the student to earn a specific type of diploma? | No (Class of 2016 and Earlier); Yes, a "Core 40" diploma (Class of 2017 and Later) | No | No |
| Other Curricular Requirements | No (Class of 2016 and Earlier); Yes -- Completion of "Scholar Success Program" (Class of 2017 and Later) | No | No |
| Guaranteed full tuition? | Yes (Class of 2015 and Earlier); No (Class of 2018 and Later); Depends on when enrolled in the program (Class of 2016, 2017) | Yes, full tuition at public institutions and a portion of tuition at private institutions. | Yes, plus a book allowance. |

Sources: Harnisch (2009), Heller (2006), Indiana Division of Student Financial Aid (2013a, 2013b, 2013c), Oklahoma State Regents for Higher Education (2013a, 2013b), and Washington Student Achievement Council (2013)