

Stemming the Summer Flood:  
An experimental study of college counselor intervention the summer after high school  
graduation on low-income students' college enrollment

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## *I. Introduction*

The number of U.S. students enrolling in higher education has steadily increased over the past several decades. However, college enrollment rates of low-income youth continue to lag behind the college-going rates of middle and upper class peers. Research efforts to explain these persistent gaps have focused predominantly on student background characteristics, academic preparation, and access to financial resources. College choice theory has examined students' decision-making up to the point when they decide where to enroll in college, while college retention theory has focused on students' experience in college after they have matriculated at a particular institution. Yet, neither the college choice nor the college success literature has thoroughly examined the effect of an important time period on students' transition to college: the summer after high school graduation.

Most parents, students, colleges, and researchers assume that the high school senior who sends a financial deposit to College X on May 1 will matriculate at College X (or at least at College Y) the following fall. Yet in a study of a national network of schools, Arnold et al. (2009) found that, in the months following high school graduation, up to a third of low-income students who had been accepted into and paid deposits to attend college reconsidered where, and even whether, to enroll. The authors referred to this phenomenon as the “summer flood.”

We examine whether it is possible to stem the summer flood of low-income students, and in turn, increase college enrollment rates among this population. During the summer of 2008 we conducted an experimental study in which we assigned active college counseling to a randomly selected group of recent graduates from seven

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innovative urban high schools in Providence, Rhode Island. Counselors worked with members of the treatment group throughout the summer to secure additional financial aid, complete necessary paperwork, and alleviate concerns about going to college. We found that, as a result of the intervention, members of the treatment group had significantly higher rates of enrollment for the fall semester, and were significantly more likely to enroll full-time and at a four-year institution. We also found that the treatment had a substantial positive effect on whether students kept the postsecondary plan they had committed to before high school graduation.

In Section II, we discuss the past research on college access among low-income students. In Section III, we explain our experimental design, data sources, measures, and analytic strategy. In Section IV, we present our main findings. We conclude with a discussion of our findings and the questions they raise for researchers and policy-makers.

### ***II. Background and Context***

The economic and social benefits of a college degree are substantial (Baum & Payea, 2004; Mumper, 1996), yet historically, these benefits have disproportionately been conferred on middle- and upper-income students. Among 1992 high school seniors, 54% of students in the bottom economic quintile enrolled in college, compared with 94% of students from the top economic quintile (Adelman, 2004). Gaps in college-going by socioeconomic status are particularly pronounced among the subset of students who 1) enroll in college immediately after high school graduation, and 2) among those who attend four-year institutions (Thomas & Perna, 2005). Even controlling for high school academic achievement, low-income students enroll at significantly lower rates than their

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middle- and upper-income peers (Ellwood & Kane, 2000). By the time students are in their mid-twenties, the differences in educational attainment are quite pronounced: only 7% of low-income youth attain a college degree by age 26, compared with 51% of students from the highest SES quartile (Haveman & Smeeding, 2006).

Policy makers have tried a variety of approaches to address these gaps. A major focus has been to make college more affordable for low-income students. For several decades the federal government has offered need-based aid in the form of the Pell grant and subsidized Perkins and Stafford loans. More recently, the government has introduced tax-deferred college savings plans and tuition tax credits as additional vehicles to make college affordable for a broader spectrum of the population. In addition to appropriating money to public higher education, a number of states also offer need-based assistance. Many colleges and universities offer their own institutional grants and loans as a portion of the financial aid package they award to students. Several studies have found that need-based aid exerts a positive effect on a range of college outcomes (Bettinger, 2004; Bound & Turner, 2002; Dynarski, 1999).

A variety of public and private agencies have initiated college preparatory programs for disadvantaged youth—some starting as early as middle school. Yet a review of the college access literature found limited robust evidence to suggest that college preparatory initiatives overall have led to increased enrollment, persistence, and completion rates among low-income youth (Gullat & Jan, 2003). One notable problem has been student attrition: as many as half of the students who begin pre-college outreach programs may not complete the entire course (Gandara, 2001).

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Policy makers have also focused on improving the alignment between high school and college curricula. At the state level, secondary and higher education officials have worked to establish a seamless transition between secondary and higher education (Hodgkinson, 1999; Venezia, Kirst, & Antonio, 2003). However, there has been limited research evaluating the effect of these alignment efforts on college outcomes.

Despite a multitude of efforts to improve college access among low-income youth, policy makers have yet to focus on the period between high school graduation and fall matriculation. This is somewhat surprising, given a fairly extensive literature identifying important links between the summer and student learning among younger children. Studies of elementary schools find that low- and high-income students exhibit similar levels of growth in academic achievement during the school year. However, low-income students' performance on fall assessments shows considerable decline when compared to similar assessments from the previous spring, whereas high-income students demonstrate academic growth from spring to fall. Researchers attribute a considerable portion of the socioeconomic achievement gap that emerges in later years to the cumulative effect of these early summer "fadeouts" among low-income children (Cooper, Nye, Charlton, Lindsay, & Greathouse, 1996; Entwisle, Alexander, & Olson, 1997).

The hypothesized causes of the summer fadeout among elementary school students parallel in many ways the findings from Arnold et al.'s (2009) examination of the summer flood: less access to structured educational experiences; counter-productive peer influences; and home environments that offer less academic enrichment.

Even the writing on college access programs (Swail & Perna, 2002; Tierney, 2002), which commonly take place during the summer, does not explicitly consider the

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summer before students attend college. Arnold et al. (2009) note that among college preparatory initiatives there is frequently a push to “start early.” This typically involves reaching out to students in elementary and middle schools. However, there is not a concurrent emphasis on “staying late,” by continuing to work with students after they graduate high school.

Nor have the prevailing college choice and retention theories focused on the influence of this time period on student outcomes. Hossler and Gallagher’s (1987) widely cited theory identifies three distinct periods of college choice: predisposition, when students develop post-high school plans; search, when students consider and evaluate colleges to which they may apply; and choice, when students choose the schools that they will attend. Implicit in the final stage is that the college choice process ends on May 1<sup>st</sup> of senior year, once students send a deposit to their selected school.

The predominant college retention theory begins with the student’s initial enrollment at the chosen college or university (Tinto, 1993). The degree to which students are academically and socially integrated on campus is viewed as a strong predictor of persistence and completion. The process of integration is assumed to begin after students arrive on campus.

While the summer after high school graduation has received little focus in the college access literature, the concept of summer attrition is not entirely new to higher education practitioners. Colleges and universities anticipate that some percentage of admitted and deposited students will change their minds and decide to enroll at a different institution, or simply choose not to enroll immediately in college. Admissions officers refer to this phenomenon as the “summer melt” (*How to Talk Like an Admissions Dean*,

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2001). Summer “bridge” programs at the college/university level have emerged over the last thirty years in part to address this trend, and more generally to help underrepresented students transition to college (Kezar, 2000). The available research suggests that summer bridge programs exert positive effects on students’ subsequent academic performance and persistence rates at individual colleges and universities (Ackermann, 1990; Buck, 1985; Garcia, 1991; Gold, 1992).

At the aggregate level, however, these programs are severely limited in the number of underrepresented students served. Moreover, the predominant assumption has been that for seniors who follow the standard path through college application, selection, and deposit, the summer melt rate is quite low.

This assumption may not hold for low-income students, who encounter a unique series of challenges and obstacles during the summer months that can alter or even derail their college plans. They struggle to evaluate financial aid offers and to find additional sources of funding, and they often have second thoughts about going to college over the summer. Considerable gaps exist in their tacit knowledge about the college experience (Arnold et al., 2009).

Without active intervention to help low-income students carry through with their postsecondary plans, the summer following high school graduation may represent an important and hitherto unnoticed leak in the high school-to-college pipeline.

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### ***III. Research Design***

#### Experimental Design

We address one principal research question in our study: Do graduates who receive active college counseling the summer after graduation enroll in college at higher rates than those who do not? During the summer of 2008, our research team assigned college counseling to a randomly selected treatment group of graduates from seven urban high schools, and compared their college enrollment rates and patterns to those of a randomly selected control group of graduates from the same high schools who did not receive active counselor intervention. Randomization was done at the student level, but within each school. Half of the graduating seniors from each of the seven schools were randomly placed in the treatment group, while the other half were randomly placed in the control group.

The experiment was conducted at high schools in the Big Picture network of schools. Big Picture Learning has gained national attention for its success in graduating socioeconomically disadvantaged students of color and sending a high proportion of them to college (Levine, 2002; McDonald, 2003/2004; Sarason, 1998). The student population of Big Picture schools is predominantly low-income, urban, and non-white. Few of their parents have attended college. Many students speak a first language other than English; some are undocumented immigrants. With slight variations across schools, 95-100% of Big Picture students are accepted into college with financial aid. College/transition counselors at Big Picture schools both guide students through the college application process and support students once they are enrolled in college.

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The treatment consisted of a heterogeneous set of interventions devised by the college/transition counselors themselves. Counselors from the high school met individually with students in the treatment group to review financial aid packages and to help students lobby for additional funding from the college or university. Counselors had class of 2007 alumni from each high school meet with students to provide perspective on the college experience. To help fill gaps in students' tacit knowledge about going to college, counselors acted as liaisons between the student and the college/university he or she planned to attend. Throughout the summer, counselors kept detailed logs of their interactions with students, documenting when the interaction happened, what kind of help the student sought, and how counselors intervened.

The treatment began on June 15<sup>th</sup>, 2008, directly following high school graduation, and continued through Labor Day, 2008, when the majority of colleges and universities begin their fall semesters. College/transition counselors were assigned a caseload of students from the treatment group, and were responsible for providing active and ongoing guidance and support for students throughout the summer months. Counselors used a variety of means to contact students—phone, email, instant messaging, and Facebook. When those means of communication failed, counselors asked staff members with whom the student had a close relationship to attempt contact. Eighty-four percent of the treatment group met with a college/transition counselor at some point during the summer; many students met with counselors multiple times. Depending on the issue the student was confronting, counselors also initiated contact with members of the students' family, and at times met with the student and his/her family members together. Meetings with students took place at one of the school sites in Providence.

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Members of the control group were not prevented from seeking the assistance of counselors, but their actions were voluntary and were documented by counselors. This represented the typical level of student-initiated request for help that the counselors would expect to observe in the absence of the intervention. What distinguished the control group from the treatment group was that the former did not receive active outreach from the college/transition counselors. Twenty-one percent of the control group initiated contact with a college/transition counselor at some point during the summer.

### Data Sources

The data in this study come from three primary sources: (1) the seven urban high schools themselves; (2) college counselor interaction logs; and (3) the National Student Clearinghouse (NSC). We constructed a database containing student-level data obtained from high school records and transcripts. Throughout the summer of 2008, we added student-specific content from the counselor interaction logs. Fall semester 2008 enrollment records for students in the sample came from the NSC, which provides student enrollment histories at participating institutions (about 91 percent of colleges and universities in the country).

The sample consists of the 162 students who graduated from the set of seven Big Picture high schools in June 2008. From the sampled graduates, 80 students were randomly selected to receive the intervention. The remaining 82 students were assigned to the control group.

### Measures

To address the research question we created several dichotomous outcome variables. *ENROLL* indicates whether students enrolled in college immediately following

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high school graduation, while *ENROLL\_FT* indicates whether students enrolled full-time. *FOUR\_YEAR* captures whether students enrolled at a four-year college or university. The distinction between part-time and full-time enrollment, and enrollment at two-year vs. four-year institutions, is important: low-income students who enroll full-time at four-year institutions—especially if the institutions are selective—have a substantially higher probability of persisting, graduating, and realizing substantial economic returns (Dale & Krueger, 2002; Mortenson, 2002). We also created a fourth dichotomous outcome variable, *KEPT PLAN*, which indicates whether a student matriculated at the institution at which they intended to enroll as of high school graduation. This is also an important outcome, since students at Big Picture schools invest the better part of their senior year working with teachers and college/transition counselors to select a college or university that optimally matches their academic goals and learning style (Big Picture Learning, 2008).

The key question predictor is a dichotomous variable, *TREATMENT*, which describes whether students were members of the treatment group receiving college/transition counselor intervention the summer after graduation. Although the study is experimental, extensive covariates are included in the analyses to improve the precision of the unbiased estimates of causal effect. Demographic variables are included as controls in the analysis, including student gender, race/ethnicity, and socioeconomic status (with free/reduced lunch used as a proxy for family income). As an ability measure, we include a covariate *BEST\_ACT*, which controls for students' prior

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performance on the ACT college entrance examination.<sup>1</sup> These controls are standard in the literature on college access and attainment.

### Data Analyses

If random assignment was successful, the distribution of individual baseline characteristics should be equivalent in both the treatment and control groups. We began our analysis by conducting two-tailed t-tests to evaluate the null hypothesis that the difference in mean values for each baseline characteristic between the treatment and control group was equal to zero. The results of these t-tests are presented in Table 1. We failed to reject the null hypothesis across all baseline characteristics for which we had data, and therefore conclude that the treatment and control groups are in fact equivalent.

*Table 1:* Means and standard deviations of baseline characteristics for participants in the summer college counseling intervention (n=162).

|   | Treatment       | Control         | Difference<br>(t-stat)* |
|---|-----------------|-----------------|-------------------------|
| Male                                      | 0.43<br>(0.50)  | 0.45<br>(0.50)  | 0.03<br>(0.33)          |
| Black                                     | 0.29<br>(0.46)  | 0.29<br>(0.46)  | 0.01<br>(0.07)          |
| Hispanic                                  | 0.48<br>(0.50)  | 0.40<br>(0.49)  | 0.07<br>(0.93)          |
| White                                     | 0.21<br>(0.41)  | 0.21<br>(0.41)  | 0.00<br>(0.80)          |
| Asian                                     | 0.03<br>(0.16)  | 0.05<br>(0.22)  | 0.02<br>(0.08)          |
| Best ACT                                  | 14.69<br>(3.04) | 14.46<br>(2.79) | 0.23<br>(0.49)          |
| IEP                                       | 0.17<br>(0.38)  | 0.17<br>(0.38)  | 0.00<br>(0.07)          |
| Free Lunch                                | 0.68<br>(0.47)  | 0.62<br>(0.49)  | 0.05<br>(0.70)          |
| Planned to go to college as of graduation | 0.83<br>(0.38)  | 0.80<br>(0.40)  | 0.02<br>(0.33)          |

\* Note: no differences reached a level of statistical significance ( $p < .05$ ) in t-test calculations

<sup>1</sup> Students at Big Picture schools take the ACT exam as a high school graduation requirement.

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Having confirmed that random assignment was effective, we can proceed to specifying a model for the average treatment effect ( $\alpha_{ATE}$ ) of the intervention.<sup>2</sup>

Let  $D$  = whether a student receives the treatment,  $Y_1$  = the potential outcome for individuals who receive the treatment and  $Y_0$  = the potential outcome for individuals who do not receive the treatment. By random assignment ( $Y_1, Y_0 \perp\!\!\!\perp D$ ). That is, the treatment is independent of the potential outcomes. By independence,  $E[Y_0|D=1] = E[Y_0|D=0]$ . We can thus specify the average treatment effect on the treated ( $\alpha_{ATE_T}$ ) as:

$$\alpha_{ATE_T} = E[Y_1 - Y_0 | D=1] = E[Y | D=1] - E[Y | D=0].$$

$$\text{Since } E[Y_1 | D=1] = E[Y_1 | D=0], \alpha_{ATE_T} = \alpha_{ATE}.$$

We can therefore estimate the treatment effect of the summer intervention as the difference in college enrollment rates between the treatment group and the control group (Abadie, 2009)

To estimate the effect of the treatment from the sample data, we fit a series of linear probability models. Because both outcome and question predictor are dichotomous, we avoid the common limitation of linear probability models, in which parameter estimates can imply probabilities outside the interval of  $[0,1]$ .<sup>3</sup>

We conducted our analyses in several stages. First, we regressed each of our four outcomes on the *TREATMENT* variable. The analytic models take the following form:

$$Y = \beta_0 + \beta_1 TREATMENT + \varepsilon$$

The  $\beta_1$  coefficient on *TREATMENT* provides an unbiased estimate of the causal effect of the summer intervention on each enrollment outcome.

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<sup>2</sup> In specifying our model, we borrow heavily from examples offered by Alberto Abadie and Jens Hainmeuller as part of API-208: Program Evaluation, offered during the spring semester 2009 at the Harvard Kennedy School.

<sup>3</sup> We are grateful to Alberto Abadie for suggesting we use linear probability models in our analyses.

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*Table 2: Estimated impact of the summer counseling intervention (TREATMENT) on graduates’ college enrollment (n=162).*

|                  | <i>ENROLL</i>               | <i>ENROLL_FT</i>  | <i>FOUR_YEAR</i>  | <i>KEPT_PLAN</i>  |
|------------------|-----------------------------|-------------------|-------------------|-------------------|
| <i>INTERCEPT</i> | 0.45***<br>(0.06)           | 0.32***<br>(0.05) | 0.26***<br>(0.39) | 0.37***<br>(0.05) |
| <i>TREATMENT</i> | 0.15 <sup>+</sup><br>(0.08) | 0.16*<br>(0.08)   | 0.16*<br>(0.07)   | 0.20*<br>(0.08)   |

Cell entries are parameter estimates and (robust standard errors)

<sup>+</sup>p<.10, \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

Note: parameter estimates can be interpreted in percentage terms, e.g. the parameter estimate associated with *TREATMENT* in the *ENROLL* model can be interpreted as a fifteen percentage-point difference in enrollment between the treatment and control group.

To estimate whether the program effect we observed in stage 1 was persistent upon control for baseline characteristics, we ran a multiple regression analysis of each enrollment outcome on both *TREATMENT* and the baseline covariates. We confirmed that linear probability restrictions were met in the multiple regression analysis by regressing each outcome on the continuous predictor *BEST\_ACT*, both on its own and controlling for the other covariates. In each case, the probability estimates remained within the [0,1] interval across the range of *BEST\_ACT*. The analytic models in the second stage take the following form:

$$Y = \beta_0 + \beta_1 TREATMENT + \beta_2 \delta' + \beta_3 \gamma' + \varepsilon$$

$\delta'$  represents a vector of covariates and  $\gamma'$  represents a vector of fixed effects for each of the seven schools in the study. Because the treatment and control groups are equivalent on baseline characteristics, the  $\beta_1$  coefficient should be very proximate to the estimate we obtained in the first stage of our analysis.

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*Table 3: The effect of the summer intervention (TREATMENT) on college enrollment, controlling for important baseline characteristics: gender (MALE), whether the student was in special education (IEP), whether the student qualified for free/reduced lunch (FREELUNCH), race (BLACK, HISP, WHITE), students' best score on the ACT exam (BEST\_ACT), and school fixed-effects (n=162).*

|                  | <i>ENROLL</i>               | <i>ENROLL_FT</i>            | <i>FOUR_YEAR</i>             | <i>KEPT_PLAN</i>  |
|------------------|-----------------------------|-----------------------------|------------------------------|-------------------|
| <i>INTERCEPT</i> | -0.02<br>(0.28)             | -0.30<br>(0.25)             | -0.42 <sup>+</sup><br>(0.23) | 0.02<br>(0.28)    |
| <i>TREATMENT</i> | 0.13 <sup>+</sup><br>(0.08) | 0.14 <sup>+</sup><br>(0.07) | 0.14 <sup>+</sup><br>(0.07)  | 0.19*<br>(0.08)   |
| <i>MALE</i>      | -0.13<br>(0.08)             | -0.10<br>(0.08)             | -0.09<br>(0.07)              | -0.17<br>(0.08)   |
| <i>IEP</i>       | 0.02<br>(0.12)              | -0.04<br>(0.11)             | -0.06<br>(0.09)              | -0.01<br>(0.11)   |
| <i>FREELUNCH</i> | 0.06<br>(0.09)              | 0.00<br>(0.08)              | -0.02<br>(0.08)              | 0.01<br>(0.08)    |
| <i>BLACK</i>     | -0.08<br>(0.17)             | -0.13<br>(0.16)             | 0.03<br>(0.18)               | -0.16<br>(0.18)   |
| <i>HISP</i>      | -0.11<br>(0.17)             | -0.13<br>(0.15)             | -0.09<br>(0.17)              | -0.21<br>(0.17)   |
| <i>WHITE</i>     | -0.28<br>(0.19)             | -0.28<br>(0.18)             | -0.12<br>(0.20)              | -0.41*<br>(0.19)  |
| <i>BEST_ACT</i>  | 0.05***<br>(0.01)           | 0.05***<br>(0.01)           | 0.05***<br>(0.01)            | 0.05***<br>(0.14) |
| <i>SCHOOL_B</i>  | -0.08<br>(0.15)             | -0.01<br>(0.14)             | 0.19<br>(0.13)               | -0.05<br>(0.15)   |
| <i>SCHOOL_C</i>  | 0.00<br>(0.16)              | 0.10<br>(0.15)              | 0.12<br>(0.14)               | 0.01<br>(0.16)    |
| <i>SCHOOL_D</i>  | 0.16<br>(0.15)              | 0.25<br>(0.15)              | 0.30*<br>(0.14)              | 0.15<br>(0.15)    |
| <i>SCHOOL_E</i>  | -0.08<br>(0.16)             | -0.14<br>(0.14)             | -0.06<br>(0.12)              | -0.10<br>(0.14)   |
| <i>SCHOOL_F</i>  | -0.21<br>(0.16)             | -0.02<br>(0.15)             | 0.14<br>(0.15)               | -0.13<br>(0.15)   |
| <i>SCHOOL_G</i>  | -0.67**<br>(0.22)           | -0.61**<br>(0.22)           | -0.50**<br>(0.19)            | -0.60**<br>(0.22) |

Cell entries are parameter estimates and (robust standard errors)

<sup>+</sup>p<.10, \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

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We next fit a series of linear probability models of the four enrollment outcomes on *TREATMENT* and each individual covariate. We included interaction terms in each model to examine whether the effect of the treatment varied by the level of the covariate. The analytic models in the third stage take the following form:

$$Y = \beta_0 + \beta_1 TREATMENT + \beta_2 \delta' + \beta_3 \gamma' + \beta_4 TREATMENT * \delta' + \varepsilon$$

*TREATMENT \*  $\delta'$*  represents the statistical interaction between the *TREATMENT* dummy and that covariate. If  $\beta_4$  is statistically significant, it indicates that the effect of the treatment does in fact vary by the level of that predictor.

Finally, we conducted a preliminary content analysis of the counselor interaction logs, to examine patterns in the kinds of help that students sought out and that the counselors provided. We describe the results of this content analysis at the end of the findings section.

### *IV. Findings*

#### Regression models

The major finding from the study is that having counselors actively intervene with low-income students the summer after high school graduation leads to higher rates of enrollment. The treatment had a significant and positive effect on each of the four outcomes. The enrollment rate of students in the treatment group was fifteen percentage-points higher than for students in the control group. Students in the treatment also enrolled full-time and enrolled in four-year colleges at considerably higher rates. Forty-eight percent of the treatment group enrolled full-time, compared to 32 percent of the control group. Forty-one percent of the treatment group attended four-year colleges and

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universities, compared with 26 percent of the control group. Even more striking, we found that students in the treatment group were substantially more likely to keep their postsecondary plans from June of their senior year. Over half (57 percent) of the treatment group kept their June plans, as compared with slightly more than a third (37 percent) of the control group.

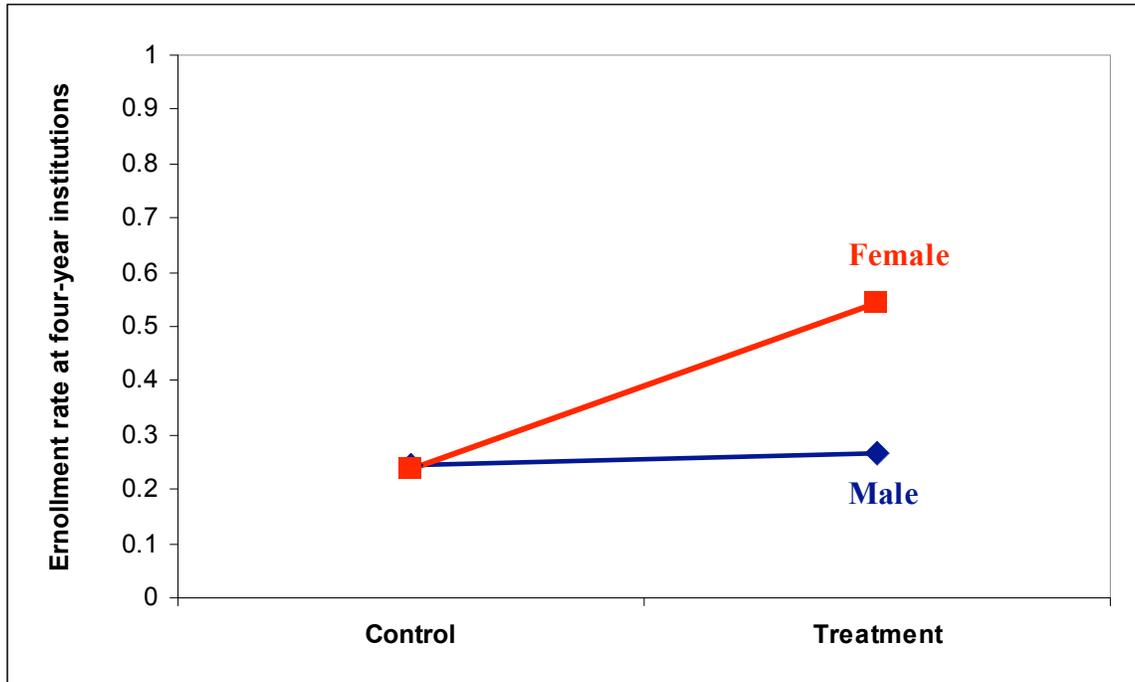
Each of these results is persistent, though slightly attenuated, upon control for the baseline covariates. For the *ENROLL*, *ENROLL\_FT*, and *FOUR\_YEAR* outcomes, the estimated effect of the treatment decreases by two percentage points. For the *KEPT\_PLAN* outcome, the estimated effect of the treatment decreases by one percentage point. Across all outcomes the robust standard errors for *TREATMENT* remain very stable. Thus, adding baseline covariates to the regression model yields a slightly more conservative and precise estimate of the treatment, but does not meaningfully alter our conclusion about the effect of the summer intervention on college enrollment.

Across all four outcomes, we found only one statistically significant interaction between the treatment variable and a covariate. The treatment effect had a significantly more positive effect for females than males on the probability of attending a four-year college or university. We display this relationship in Figure 1. As can be seen, less than 25 percent of males and females in the control group enrolled at four-year institutions. However, while less than 25 percent of males in the treatment group enrolled in four-year institutions, over half of the females in the treatment group (54 percent) enrolled at four-year institutions.<sup>4</sup>

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<sup>4</sup> As a result of conducting multiple tests for interactions across all four outcomes, it is possible that we have accumulated Type I error, and falsely reject the null hypothesis that there is no interaction between *TREATMENT* and *FEMALE* in the population.

*Figure 1: The effect of the summer intervention (TREATMENT) on enrollment at four-year institutions, by gender (MALE). Fitted lines are included to illustrate the magnitude of the interaction (n=162).*



Interaction log content analysis

Preliminary analysis of the interaction logs reveals three primary areas in which counselors assisted students. Counselors helped students lobby successfully for additional funds from the college; find private loans; and in the absence of additional funds, develop alternative postsecondary plans. We also found that counselors helped students make sense of the information they received from colleges. The counselors recorded that many students lacked the confidence to telephone their chosen college to ask a question, or to discuss an issue that has arisen. Counselors helped students connect with the college to resolve outstanding issues and to complete required paperwork. This was the most popular topic for counselor-student communication, followed by procuring

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additional funding, and evaluating financial aid packages. In addition, we found that students required assistance from counselors most often during certain time periods. The most communication occurred between two and four weeks after high school graduation (from approximately the beginning to the middle of July.) We continue to analyze the interaction logs, and will include additional qualitative detail about student-counselor interactions in later versions of this paper.

### *V. Discussion*

The results of this experimental study suggest that, for low-income students at Big Picture high schools, active college counseling the summer after high school graduation leads to substantially higher rates of college enrollment. Equally importantly, college counseling during the summer months leads to better *quality* enrollment: assisted students enroll full-time and attend four-year institutions at higher rates. Furthermore, a notably larger portion of students in the treatment group kept the postsecondary plans they developed during their senior year in high school. It is reasonable to assume that these students matriculated at institutions that better matched their academic and career goals than students who had to make last-minute changes over the summer. Students who maintained their postsecondary plans may also have had more opportunity for useful anticipatory socialization to the college experience (Attinasi, 1989).

We also speculate that intervening with low-income students the summer after high school may have longer-term impacts on persistence in college. By virtue of resolving various issues over the summer months, students are more likely to enter college psychologically and emotionally ready. It is reasonable to infer that students with

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a stable mindset, at an appropriately matched institution, will experience a more fluid academic and social integration into campus life, which in turn increases the probability they will persist and graduate (Tinto, 1993).

Our analysis also indicates that active college counseling has a differential effect for women and men, at least on the probability that students enroll at four-year institutions.<sup>5</sup> The observed difference is not entirely surprising, since women are now more likely to enroll in and graduate from college than men. Nonetheless, it is unclear why summer counseling would lead to such a stronger positive effect for women. One possible explanation is that women engage more fully—and thus benefit more—from the interpersonal nature of the counseling interactions (*add citation*). This finding merits a deeper analysis of the content interaction logs to investigate whether clear patterns exist in the kinds of help women in the treatment group received versus men in the treatment group.

The cumulative effects of better quality enrollment could be quite significant. The college access literature indicates that students who enroll full-time are more likely to graduate on time. Four-year institutions, on average, offer more comprehensive support services, and a broader range of academic departments, course offerings, and majors. Students at four-year institutions are also more likely to engage in a vibrant campus life, which can further increase the probability of persisting and graduating (Pascarella & Terenzini, 2005). In this sense, the effect of helping students the summer after high school graduation might be much more considerable than simply increasing the number who enroll in the fall: summer intervention may help students commence on a college pathway that has a much greater chance of culminating in success.

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<sup>5</sup> As noted earlier, we acknowledge the possibility that this finding is the result of Type I error

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It is beyond the scope of this paper to conduct a thorough cost-benefit analysis of the summer intervention. However, it is worth noting that the entire intervention cost less than \$15,000 (primarily salaries for the college/transition counselors). When compared to the potential private and social returns of increased rates of college graduation among low-income students—higher earnings and tax revenues; lower public expenditures—summer college counseling may be a very cost-effective social investment. More to the point, there are several features of the summer that make it ripe for policy intervention: the target population is well-defined; the time period is short and clearly bounded; students are predisposed to and intent on college attendance, and have already overcome many obstacles to college access. In short, with a final push to help students address personal and social issues that arise over the summer, policy makers can mitigate unnecessary attrition from a population already primed for college entry.

It is unclear how generalizable the results of the study are. While the internal validity appears robust, the external validity of our findings is more uncertain. First and foremost, the sample size is small. It is reasonable to ask whether the magnitude and significance of the findings would persist in a larger-scale intervention. Also worth noting is that Big Picture schools are qualitatively different from the majority of urban schools in the country. Students self-select into the school via an admissions lottery, and may be more motivated, or have more involved parents, than the average urban high school student. Big Picture students also receive more personalized attention than the average urban high-schooler, and may be more responsive to outreach from school personnel after they have graduated.

## **WORKING DRAFT – PLEASE DO NOT CIRCULATE**

### Implications for future research

The uncertainties regarding the external validity of our study serve as a useful segue into a discussion of future research. It is important to note that students in the Big Picture Learning network represent in many ways a best-case scenario. They have received intensive personalized attention throughout their high school experience, and active school-based assistance throughout the college application process. If summer intervention had a strong and positive effect on these students, it is quite reasonable to assume that the effect would be as large, if not larger, for students who received less support and guidance.

Simply stated, more needs to be known about the impact of the summer after high school graduation on low-income students' transition to college. A potential source of information is state educational databases. A number of states (e.g. Florida, Texas, Ohio) now maintain longitudinal records on students from kindergarten through graduate school. While all of these states track whether and where students enroll in college immediately following high school graduation, our research team has yet to find a state that maintains official records of the college to which students submitted deposits before high school graduation. Promisingly, the majority of colleges and universities maintain these records, albeit decentralized from campus to campus. If states incorporate this information into their longitudinal databases, we can evaluate the extent of the summer flood on a much broader scale.

Further experiments should be conducted to evaluate whether summer college counseling on a large scale is an effective means of increasing both the degree and quality of college enrollment among low-income students. Having high school counselors

## WORKING DRAFT – PLEASE DO NOT CIRCULATE

intervene with students is one approach. Another promising avenue is through online social networking. Emerging research suggests that students begin actively participating in their intended college's Facebook community well before high school graduation, and moreover, that Facebook interactions are becoming an increasingly central component of students' social experience in college (Martinez Aleman & Wartman, 2008). One possible intervention would be for colleges to reach out, via Facebook, to low-income students who paid deposits. In theory, by actively engaging students and helping them resolve issues that arise over the summer, students would be more likely to matriculate in the fall.

### Implications for high schools and colleges

The summer flood has not yet sufficiently been explored to warrant a broad policy response. Yet secondary education districts and higher education institutions seeking to increase the rate and quality of college enrollment among low-income students should consider the following actions:

#### *High schools: "staying late"*

The counselor interaction logs lend further support to Arnold et al.'s (2009) conclusion: even students who have benefited from considerable high school attention and support are confronted with decisions ranging from last minute college applications to financial aid concerns. Many low-income students may need to have someone available to assist them throughout the summer. The high school, in short, needs to "stay late" in order to assure a successful transition to college. A logical decision would be to extend the contract of college/transition counselors or teachers to include summer months. Counselors can provide assistance with summer financial decisions and can help

## **WORKING DRAFT – PLEASE DO NOT CIRCULATE**

facilitate necessary communications with colleges and universities. Our ongoing work suggests that students may be particularly receptive to summer support if they have a prior and strong relationship with the staff member(s) providing assistance.

*Colleges: “starting early”*

Aspects of the summer “bridge” programs referred to earlier in the paper appear to be quite successful in helping students acclimate to the university and adjust to its academic demands. Yet bridge programs are relatively rare among low-income, first-generation students, especially those who attend less selective institutions. Colleges and universities should consider broader adoption of summer bridge programs, structured specifically to address the issues that often derail students’ summer plans.

Correspondingly, higher education institutions should continue reaching out to admitted first-generation students after they have paid their deposits. Ongoing contact raises the probability that admitted students will communicate difficulties and concerns, enabling timely intervention by college staff. Moreover, colleges could involve admitted students’ families. Actively reaching out to parents to address concerns they have about their child going to college could contribute to improved enrollment and persistence rates among this population.

### ***VI. Conclusions***

The summer after high school graduation is a largely unexamined stage of college access among underrepresented populations in higher education. This paper investigates the effect of providing college/transition counselor intervention to low-income students during the summer following high school graduate. In so doing, we seek to further investigate the issues hindering college access for low income students, to generate

## **WORKING DRAFT – PLEASE DO NOT CIRCULATE**

additional study of the summer flood phenomenon, and to suggest ways to mitigate the impact of the summer flood on qualified, aspiring college students. Our findings indicate that providing active college counseling to low-income students during the summer months leads to meaningful improvements in both the rate and quality of college enrollment. Practitioners and policy makers seeking to improve the flow of low-income students to and through college should further examine this crucial time period.

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