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Data and Decisions for Higher Education

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Project Description I

Title:

A Field Experiment: Does increasing parents' "college knowledge" increase their children's SAT registration and completion rates?

Statement of the research problem and national importance:

Educational research has consistently found that low–income students with similar qualifications to higher income students are less likely to attend a four-year college and more likely to either attend a two-year college or not attend college at all (Manski and Wise 1983; Pallais and Turner 2006; Kane 1999; Hanson 1994; Advisory Commission on Student Financial Assistance 2008).

The problem does not seem to be one of aspiration. Low-income seniors have approximately the same college-going aspirations as their higher income peers (Avery and Kane 2004), but they are less likely successfully to navigate the path to four-year college. Controlling for academic qualifications, low-income students who aspire to a four-year degree complete key steps in the four-year college application process at much lower rates than higher income students (Avery and Kane 2004; Roderick 2011; Plank and Jordan 2011; 33 2012). *Appendix Figure 1* shows how academically qualified (GPA > 3.0) students from three Boston public high schools drop out at various stages of the college application process while their peers at a suburban, high SES school do not. Failing to take the SATs accounts for over 50% of low-income students' attrition from the four-year college pipeline.

While low-income students who do not begin four-year college immediately after high school can pursue a bachelor's degree via the community college transfer route, research shows that, controlling for student abilities, students who start at a two-year college are much less likely ever to earn bachelor's degree (Long and Kurlaender 2009; Lockwood Reynolds 2012).

Given the well-established, large, and growing labor market returns to additional years of education (Long 2010 provides a survey), underinvestment in college education by low-income individuals is likely significantly to reduce their welfare. It is also, through misallocation of human capital, likely to decrease overall GDP growth and U.S. competitiveness. President Obama has therefore set a policy goal of increasing degree attainment among 25–34-year-olds from 38% today to 60% by 2020 (Kanter et al. 2011).

Research on policy interventions to decrease college pipeline attrition and thus increase low-income students' participation in four-year

college is therefore of national importance.

In this research, I pose two main research questions:

(i) Can policy interventions based on behavioral economic insights increase the rate at which low-income students register for and complete the SAT?

(ii) Can policy interventions aimed at low-income parents have significant effects on their children's SAT registration and completion?

Note that I focus on the SAT because it is the dominant test required by major public and private colleges in Oregon, where I plan to complete this research.

A behavioral economics approach is useful because it not only directly addresses the ways in which individuals may fail to act in accordance with their stated preferences, i.e., going to four-year college, but also suggests specific interventions to help them take actions consistent with their goals. Amongst other things, it suggests what type of information intervention may be useful, which is of interest given this year's AIR focus topic.

Why parents? College-access research has shown that low-income parents lack the social and cultural capital to make them effective advisors of their high school age children (e.g., McDonough 1997). This had led some researchers to ask if high school college-going climate can fill the gap in parental knowledge and capability (Roderick et al. 2011). However, creating strong college-going high school cultures is not a trivial exercise, and education budgets are tight. This research proposal instead asks, whether a policy intervention can *directly* fill the gap in parental knowledge and capability. If it can, it may provide a simpler, cheaper way to increase the rate at which low-income students successfully navigate the four-year college pipeline. Again, this is relevant to the 2012 AIR focus topic which asks how both students and their families use college information.

To answer the research questions posed above, I propose a field experiment using an existing mechanism with national reach—the Free and Reduced Price Lunch Program.

Review the literature and establish a theoretical grounding for the research:

College Pipeline Attrition

A large body of research suggests that low-income students are unable to access the information and guidance required to effectively navigate the college application process (Roderick 2011; Cabrera and La Nasa 2000a, 2002b; Gonzalez, Stoner, and Jovel 2003; Howard 2003; McDonough 1997; Person and Rosenbaum 2006; Schneider and Stevenson 1999; Stanton-Salazar 2001; Wimberly 2002).

First, researchers have found that low-income students struggle with the college application process (Avery and Kane 2004; Kao and Tienda 1998; Kirst and Venezia 2004). Both Plank and Jordan (2001) and Klasik (2012) using nationally representative longitudinal data found that differences in step completion and search and application activities explained much of the difference by SES in students' likelihood of attending four-year college. Others have found that many low-income students believe financial aid is too complex to apply for and apply late or not at all (Roderick 2011; King 2004; De La Rosa 2006; Kirst and Venezia 2004).

Secondly, given recent shifts in enrollment by low-income college-qualified high school graduates from four-year to two-year colleges (Advisory Commission on Student Financial Aid 2008, Lovenheim and Reynolds 2011), it seems important to consider potential effects on completion rates for four-year application process steps. Choosing community college means not having to take the SAT.

Although often marketed as the "best place to begin a bachelor's degree" (PCC 2011), all else equal, matriculation at a community college significantly reduces the likelihood of attaining a four-year degree (Long and Kurlaender 2009; Lockwood Reynolds 2012). The fact that 78% of students who enter community college after high school continue to aspire to a four-year degree suggests they may not know this (U.S. Department of Education 2009). This is consistent with a strand of literature suggesting that for low-income students the opacity of college net prices combined with uncertainty around the financial aid availability (Perna and Steele 2011; Roderick et al. 2008) makes it hard for them to evaluate their options.

Parents and their Children's College Choices

Students' educational aspirations are heavily, even primarily, influenced by their parents (Hossler, Schmit, and Vesper 1999). However, Roderick et al. (2011) found that for students in Chicago's public schools, "parental press" was significantly associated with students' plans to attend college, but not with their completion of college application steps. As noted earlier, they hypothesize that this is because, as many studies have found, low-income parents lack the social and cultural capital to give their children concrete support in the college application process (Perna 2006 summarizes the literature). This is also consistent with a more general finding in the literature that students rely more on peers, counselors and teachers during senior year (Bell, Rowan-Kenyon, and Perna 2009; Hossler et al. 1999).

Nonetheless, parents are highly motivated to encourage their children to attend college, and they can be effective. Ninety-four percent of parents expect their child to attend college (Pew Research Center 2011), and 95% of Latino parents indicate that it is "very important" to them that their children attend college (Tornatzky, Cutler, and Lee 2002; Pew Hispanic Center 2004). Importantly, Plank and Jordan (2001) provide evidence that parental support can be just as effective as strong school supports in encouraging pro-college behavior.

Little research addresses interventions to build parental capability. Fann et al. 2009 evaluated a series of collaborative workshops aimed at enabling non-college qualified parents to become active participants in their children's college preparation and planning. This study, which focused on Latino parents in Texas, found that participating parents paid attention to and desired information to be sent by mail in Spanish and English; wanted regular communication on the steps to college; and prioritized learning about financial aid, general information about the university and college system, the process of applying for college, academic requirements for college admission, and tests required for college admission (Fann et al. 2009). This study did not, however, measure the impact of increased parental knowledge on their children's pro-college behaviors.

Theoretical or Conceptual Framework

The proposed research is grounded in behavioral economics. While human capital theory assumes that individuals hold complete, stable, and well-specified preferences, make plans to maximize their welfare, and that their choices reflect these plans(Becker 1975), behavioral economics draws upon the psychological literature demonstrating pervasive—and, importantly, predictable—violations of these assumptions (Camerer and Loewenstein 2004; DellaVigna 2007; and Rabin 1998 provide overviews). Relaxing the classical economic assumptions means losing modeling precision, simplicity, and clarity. In return, we can gain insights suggesting policy interventions, often simple ones, to directly "nudge" individual decision-making in ways that align individuals' actions with their own goals, in this case, having their children obtain a four-year degree (Thaler and Sunstein 2008).

Congdon and Mullainathan (2011) propose a framework dividing deviations from the standard economic model of decision-making into three groups: non-standard preferences; imperfect optimization; and bounded self-control. Both bounded self-control and imperfect optimization could be responsible for observed low-income college pipeline attrition (Congdon and Mullainathan 2011).

Bounded self-control suggests that while low-income students and their parents may have a preference for attending a four-year college, students may fail to take the SAT—and their parents fail to press them to do so—because they put off finding out what is required, are deterred by the high financial, time, and complexity costs, and are suffering from high cognitive load. While higher income students suffer these stresses as well, in their case they are likely to be mediated by the knowledgeable support and expectations of college-educated parents, peer effects, and by strong college-going school climates.

Imperfect optimization means that individuals frequently make optimization errors when faced with opaque and complex pricing schedules and the need to trade-off multiple dimensions simultaneously. They can find it difficult to make a choice at all when faced with many alternatives. Given the difficulty of understanding college net pricing, i.e. attendance cost less grant aid, and financial aid entitlements, low-income students and their parents may "give up" on starting at a four-year college, making the SAT irrelevant.

Motivated by similar hypotheses, Bettinger et al. (2012) found that providing assistance with FAFSA completion to low-income potential college students or their parents significantly increased subsequent college attendance. They also tested the effect of providing information on financial affordability of local colleges to parents of high school seniors and found no significant effect on subsequent college attendance. Unfortunately, their study was limited by the fact that it addressed parents of high school seniors, i.e., students at the end of their college application process. Hastings and Weinstein (2008) examined low-income parents' choice of school in a school choice lottery and found that providing information on school test scores to lower income families significantly increased the percentage of parents choosing higher performing schools.

> *Hypothesis 1: An information intervention aimed at increasing the rate at which low-income students register for and take the SAT via increased parental press will be effective if it*

(i) makes it less costly for parents to press their children to register for and take the SAT, e.g., by providing information on when and how to register, simplifying the SAT registration process, and making it easier to get a fee waivers

(ii) integrates information on the costs and benefits of alternative college options to make it clear that (a) college is affordable and has high average returns, (b) starting at a four-year college significantly increases the likely returns to college, and (c) taking the SATs expands college-going options.

Bounded self-control and imperfect optimization also affect how individuals seek out and use information. Bounded self-control suggests that individuals may procrastinate and put off seeking information that helps them achieve their goals, e.g., seeking out information on the SATs and applying for college. Imperfect optimization suggests that they may not accurately process and integrate complex information.

Kling et al. (2011) examined another consumer choice complicated by numerous options with difficult-to-estimate benefits and opaque pricing schedules—choosing a Medicare Part D prescription drug plan. In a field experiment, they found that consumers who were only given the address of the website where they could find relevant information switched plans significantly less frequently and saved much less when they switched than did those who received a letter with personalized cost information.

Hypothesis 2: Providing information directly to individuals and in a format that integrates multiple sources of information, is personally relevant, and simplifies comparing alternatives and reaching conclusions will have a greater impact on SAT registration and completion than will providing general information and directing individuals to sources of more specific information that they will need to seek out and analyze.

Describe the research method that will be used:

To test these hypotheses, I plan to conduct a field experiment, using the annual application process for free and reduced price school lunch (FRPL) program in the Salem-Keizer school district (SKSD) in Oregon.

The FRPL application process is an attractive vehicle for an information intervention. The FRPL program is an existing program with national reach, to which low-income parents are likely to be attentive. Twenty-one million students received either a free (18.3 million/87%) or reduced (2.7 million/13%) lunch in 2011 (Dahl and Scholz 2011). Dahl and Scholz (2011) estimate that 72% of eligible children participate in the program.

Importantly, the USDA mandates that the school send FRPL forms home to every student each year, providing a ready mechanism for an experimental information treatment. FRPL income limits also greatly simplify communicating college net prices. For the 87% receiving free lunch, net price data for the $0-$30,000 price range will be relevant, while for the remaining 13% the $30,001-$48,000 bracket is relevant.

Salem Keizer school district is also an attractive site (*Appendix Figure 2*). Sixty-five percent of SKSD students are eligible for FRPL. Students are not required to take the SAT or ACT. Only 38% of the 2012 graduating class took the SAT, with 28% taking it in senior year and 10% in junior year.

Treatment Design

As fifty-one percent of students are white and 38% are Hispanic, with other races and ethnicities accounting for only small percentages, treatment materials will be sent in both Spanish and English. To maximize parents' attention to the treatment, I will use tailored design techniques (Dillman 2000).

Treatment Group 1 (Hypothesis 1): This group will receive, in addition to an FRPL application, an attractively presented, 3 page package of information on steps they can take to help their student become a four-year college graduate, emphasizing SAT registration and completion. As much as possible, key information elements will be pulled out into a single, easy to read cover page that highlights what specific action the parent should take. The package will include information on helping your child:

(i) Complete college application steps, including the SAT.

1. A checklist of steps in the college application process, by year in high school, including taking the SAT. Ideally this will be an existing college application checklist such as those on the U.S. Department of Education's Federal Student Aid site.
2. An SAT fee waiver application to be returned along with the FRPL application. The SAT fee waiver is issued by guidance counselors. It eliminates the $50 SAT registration fee and entitles holders to up to four college application fee waivers. The SAT fee waiver card will then

be mailed back to eligible requesters along with instructions on how to register for the SATs. The treatment will emphasize the savings offered by the waver.

3. Information on SAT test dates and registration deadlines, local test centers, and SAT

(ii) Choose the right college. Bearing in mind the hypothesis that parents and students may not understand that starting at a four-year college is affordable and more likely to lead to a degree than community college, the cover sheet will emphasize that actual prices for low-income students are very different to sticker prices and the importance of considering outcomes such as graduation rates, loan repayment rates and, for community colleges, transfer rates. The package will also include a one-page sheet comparing two-, four-, and two-to-four-year college options. This sheet will provide simple net price information based on FRPL income levels, group college options by SAT score ranges, and highlight college outcomes such as graduation rates and loan repayment rates and community colleges transfer rates. It will adopt much of the format of the Department of Education's proposed College Scorecard and Financial Aid Shopping Sheet (*Appendix Figures 3-4*), but will compare multiple options on one sheet. It will include local and more distant "good value" college options.

(iii) Get financial aid. The package will include information on completing the FAFSA and aid types and eligibility, but FAFSA completion is not an experimental focus.

Treatment Group 2 (Hypothesis 2): This group will receive an FRPL application and one page of guidance on helping their child become a college graduate. This one page will cover the same topics as Treatment 1, but in general terms. It will mainly be a list of relevant U.S. Department of Education and other resources rather than a source of information itself. For instance, "Choosing the Right College" will direct them to College Navigator and to the College Affordability and Transparency Center; "Get Financial Aid" will direct them to StudentAid.gov; and "Complete College Application Steps" will direct them to checklists on StudentAid.gov and to the College Board's website and to the College Board's SAT site.

Control Group: To maximize statistical power, rather than holding out a control group from 2013 juniors and seniors, I will compare their SAT registration and completion rates to those of 2012 juniors and seniors, using a regression discontinuity analysis (*Appendix Figure 6*).

Dependent Variables

The primary dependent variables will be the percentage of the treatment group

(i) Whose student(s) register for the SATs, and

(ii) Whose student(s) complete the SATs.

Note that students who have already registered for the SAT before receiving the treatment will be excluded. This is likely to be a small number.

I will also measure the percentage of Treatment Group 1 who request an SAT waiver.

Sample Size

Control Group (2012/13 juniors and seniors): N = 3,350. There are six main SKSD high schools with a total of 5,152 juniors and seniors in 2012, spread relatively evenly among schools and between juniors and seniors (*Appendix Figure 2*). Of these, approximately 3,350 are eligible for FRPL.

Treatment Groups 1 and 2 (2013/14 juniors and seniors): Given numbers in lower grades, it seems likely that there will be a similar number of juniors and seniors in fall 2013 when data collection occurs. Of those, approximately 3,350 are likely to be eligible for FRPL. These will be split evenly between Treatment Group 1 (1,675) and Treatment Group 2 (1,675).

Power Analysis: To be conservative, and as they complete the SAT at different rates, I conducted separate power analyses for both the junior and senior samples as well as the full sample (*Appendix Figure 5*).

Experimental Process

Allocation to Experimental Condition

Random allocation will be based on the last three digits of students' school ID number. FRPL application forms and treatment materials will be mailed together to entering juniors' and seniors' home addresses in order to capture which parents/guardians were exposed to which treatment and increase consistency of treatment exposure. (Usually, application forms are sent home with students and made available in school offices and online. The latter two avenues to obtain forms will still be available and to the extent that they are used and result in the treatment being ignored may reduce treatment, i.e. my mailing effects.)

Randomized control trial designs such as this enable strong causal inference (Schneider et al. 2008). This design will also enable me to estimate both district average and school-specific treatment effects, enhancing generalizability. But the possibility of parents sharing treatment information raises a potential threat to validity. Parents may be exposed to treatments to which they were not assigned. Also, the school district may not wish to randomize treatments within schools. *Appendix Figure 7* outlines an alternative design based on varying treatments by school and using hierarchical linear modeling to control for variation in student characteristics, such as race/ethnicity and income, and school-level characteristics.

Measurement

- For the treatment and control groups, both dependent variables will be measured using individual student SAT registration and score information provided to high school counselors as part of the standard SAT process.
- Other student-level variables: the school district will provide counselors with a spreadsheet containing names, student ID, FRPL status (income proxy), and other analytically-relevant student-level information including race and ethnicity and cumulative GPA.
- Process: Counselors (or another school district employee—see Budget) will enter request for information and SAT registration and completion status for each student and prepare and return information packets requested. They will then delete student names and all but the last three digits of student ID numbers and provide me with the file.

Data Analysis

Appendix Figures 6 and 7 set out the draft data analysis. I will work with Professor Mark Long at the Evans School and the UW Center for Statistics and the Social Sciences consulting team to refine this design.

Uploaded Appendix Document(s):

- Appendix (Helen Kilber)

Project Description II

Will you use NCES target dataset? No

Please check all NCES datasets that apply

Explain why each dataset best serves this research. Include a variable list for each dataset used.

Will you use NSF target dataset? No

Explain why each dataset best serves this research. Include a variable list for each dataset used.

Will you address the NPEC focus topic? Yes

If yes, please briefly describe:
This research proposal directly addresses the NPEC focus topic. Using an experimental design enables me to test not just how parents say they use information, but directly to measure the impact of information and of different provision formats on specific pro-college behaviors, namely, registration for and completion of the SATs. In all cases, I will leverage real, existing materials wherever possible.

Information on college net prices and outcomes will be based directly on publicly available information from College Navigator (which itself draws on data reported or disclosed by post-secondary institutions), net price calculators, and the College Affordability and Transparency Center. In Treatment 2, parents will be directed to these resources to seek out information for themselves, whereas in Treatment 1, parents will receive personalized materials that integrate relevant information from these sources and present it in a simple, accessible format. In designing Treatment 1, I will leverage both the College Scorecard and Financial Aid Shopping Sheet to create a one- or two-page information sheet covering major college outcomes and affordability measures. Similarly, the SAT information treatments will be based on publicly available information from the College Board and other sources.

Project Description III

Provide a timeline of key project activities:

January–March 2013

Experimental Design: Finalize experimental design. During this term, I will complete an experimental design in education class at the School of Education, University of Washington, with Dr. Elizabeth Sanders. I will work with her and my advisor Dr. Crystal Hall to finalize my experimental design, including draft treatment materials. As part of this process, I will also develop my planned data analysis approach in more detail. I will use statistical advising from the Methods and Data Team at the Center for Demography and Ecology at the University of Washington. Professor Mark Long, who specializes in labor economics and the economics of education at the Evans School, will also review my analysis plan.

School District Process: Continue research approval process, including process for accessing de-identified student level data. (Research proposal lodged December 2012.)

Human Subjects: Start the approval process by working with the Evans School's UW Human Subjects Division liaison Deborah Fishler.

April–June 2013

Experimental Design: Pre-test treatment materials. In this term, I will undertake a qualitative research project under the supervision of Professor Sara Curran of the Evans School of Public Affairs and Jackson School of International Studies, University of Washington,. I have already completed a course in qualitative research methods with her, and would value her input as I conduct interviews in support of this study. I will undertake 12 interviews (half with low-income Latino parents and half with white parents). I will recruit white and Latino parents of high performing students (GPA > 3.0) in Portland, Oregon, using snowball sampling. I will conduct interviews with Latino parents in Spanish working with a Latina translator and Portland Public Schools elementary teaching assistant who has volunteered her help. (I speak some Spanish, but am not sufficiently fluent to conduct interviews without support.) I will show each interviewee drafts of the treatment materials and use open-ended questions followed up by more structured probes to explore the extent to which the material is regarded as useful and motivates pro-college behavior. I will show the SAT information treatment to six parents (three white/three Latino) and the college information treatment to the other six parents. Treatment materials will be revised after the interviews.

School District Process: Finalize research approval process, including approval of treatment materials.

Human Subjects: Submit application for review in time for consideration at the June 2013 UW IRB meeting.

July–October 2013

Ph.D. Milestones: August—submit and defend dissertation proposal (required for advancement to candidacy).

Experimental Design: Revise treatment materials in light of pre-test results.

School District Process: Submit final research materials

Human Subjects: Final IRB approval expected by August 2013.

Data Collection:

1. Early September 2013 (first day of school is September 4): Mail FRPL applications and treatment materials to subjects.
2. September–October: Collect responses (requests for college information and completed SAT waiver forms); send out requested college information. (I will put in place a process to capture any information requests that straggle in after end October.)

November 2013–June 2014

Data Collection**:** January–June 2013—monthly collection of SAT registration and completion data from guidance counselors (SAT dates are in January, March, May, and early June).

Data Analysis: Commencing with the January collection of data, I will begin data analysis with an incomplete data set to ensure I have a draft paper ready for the May 26—30, 2014 AIR Forum. This paper will also draw on the qualitative research conducted earlier in the project.

July–September 2014

Data Analysis and Preparation of Final Paper: As the final SAT date of interest to this experiment is June 2, 2014, I anticipate applying for a no-cost extension to the AIR grant in order to enable full data collection and maximize the value of the experiment. I expect to complete the final paper by the end of September 2014.

List deliverables such as research reports, books, and presentations that will be developed from this research initiative:

I will produce research reports, conference presentations, and peer-reviewed journal articles.

1. Research Reports: Mid-year and final research reports to AIR grant program office
2. Journal Articles: At least two articles will be prepared for submission to journals such as the Journal of Higher Education, the Journal of Policy Analysis and Management, the Journal of Education Effectiveness and Educational Evaluation and Policy Analysis
3. Conference presentations will be developed as noted below.

Describe how you will disseminate the results of this research:

I will propose unique submissions to the AIR Forum 2014 (to be held May 26–30, 2014 in Orlando, FL; proposal due October 2013) and some combination of the following:

Boulder Summer Conference on Consumer Financial Decision Making May 2015 (location to be announced; December 2014 abstracts deadline)

Association for Education Finance and Policy Annual Conference (March 2015, location to be announced, November 2014 proposal deadline)

Association for the Study of Higher Education 2014 to be held in Washington, DC (November 2014, May 2014 proposal deadline)

Society for Research on Educational Effectiveness Fall 2014 Conference (September 2014, location to be announced, date for abstracts to be announced)

The Association for Public Policy Analysis and Management (APPAM) Fall 2014 Conference (November 6-8, 2014, Albuquerque, NM, proposal deadline TBD)

Research findings will also be shared in summary form with the Salem-Keizer school district, the Oregon Department of Education, and the US Department of Education.

Provide a reference list of sources cited:

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IRB Statement

Statement of Institutional Review Board approval or exemption:

The Principal Investigator has completed Protection of Human Research Subjects training.

This research will require full review by the University of Washington Institutional Review Board. In particular, this research will require a waiver of consent on grounds of minimal risk and authorization of the use of deception in that subjects will not be informed that they are participating in research.

As per the overall project timeline, I will

January 2013: Start the approval process by working with the Evans School's Human Subjects Division liaison Deborah Fishler

May 2013: Submit the IRB application in time for consideration at the June 2013 IRB meeting

August 2013: Expected IRB approval (allowing 12 weeks for revision if required).

Statement of Use of Restricted Datasets

Not applicable.

Biographical Sketch

In 2013, Helen Kilber enters her third year of the doctoral program in public policy and management at the Evans School of Public Affairs at the University of Washington. She plans to complete her general examination in August 2013 at which point she will advance to PhD candidacy.

Ms. Kilber has a Bachelor of Economics (First Class Honors) from the University of Queensland, Australia, and a Masters in Business Administration from the University of California, Berkeley, where she studied as a Fulbright Scholar. Before entering the Evans School Ph.D. program, she was a Director of Global Strategic Planning at Nike Inc. and before that a project leader at the Boston Consulting Group. Before completing her MBA, she was a policy adviser in the Prime Minister's Department of Australia and in the Australian Foreign Service.

Ms Kilber's research interests focus on financial decision-making in the context of poverty and how insights from behavioral economics can be used to develop simple, scalable, and effective policy interventions. She is particularly interested in low-income people's educational decision-making given the high level of complexity and uncertainty involved in these choices combined with the high potential of education to relieve poverty and create social mobility.

Ms. Kilber has served as a graduate student researcher on several projects during her tenure at the Evans School, all of which have built her skills in experimental design and analysis. Ms. Kilber collaborated with Professor Crystal Hall to design and run field experiments exploring (i) variations in risk preferences between working and middle class individuals, and (ii) the effect of collectivist versus individualist messaging on low-income people's take-up of financial opportunities. She also, under Professor Hall's supervision, undertook a qualitative research study involving both interviews and participant observation to identify drivers of high cost customer behaviors at a low-income credit union.

Ms. Kilber has sophisticated skills in quantitative research methods and techniques. She has completed coursework in foundational statistical techniques including regression analysis, ANOVA techniques, and multivariate analysis techniques. She has also completed coursework in advanced methodologies, including hierarchical linear modeling, propensity score matching, and regression discontinuity design, with Professor Mark Long, an experienced applied econometrician specializing in educational research.

Budget Requirements

Salary/Stipend: $0.00
Tuition and fees: $16255.00
Travel: $2059.00
Other travel related expenses: $0.00
Other research expenses: $1686.00
Total Request: $20000.00

Funding History

This research is not covered by any other prior, current, or pending funding. I have not received prior AIR funding.

Letter of Support from Dissertation Faculty Advisor

- Letter of Support

Appendix

Figure 1: % of HS students qualified for (> 3.0GPA) and aspiring to four-year college who complete key steps in the college application process

Source: Avery and Kane (2004, pp. 368–69)

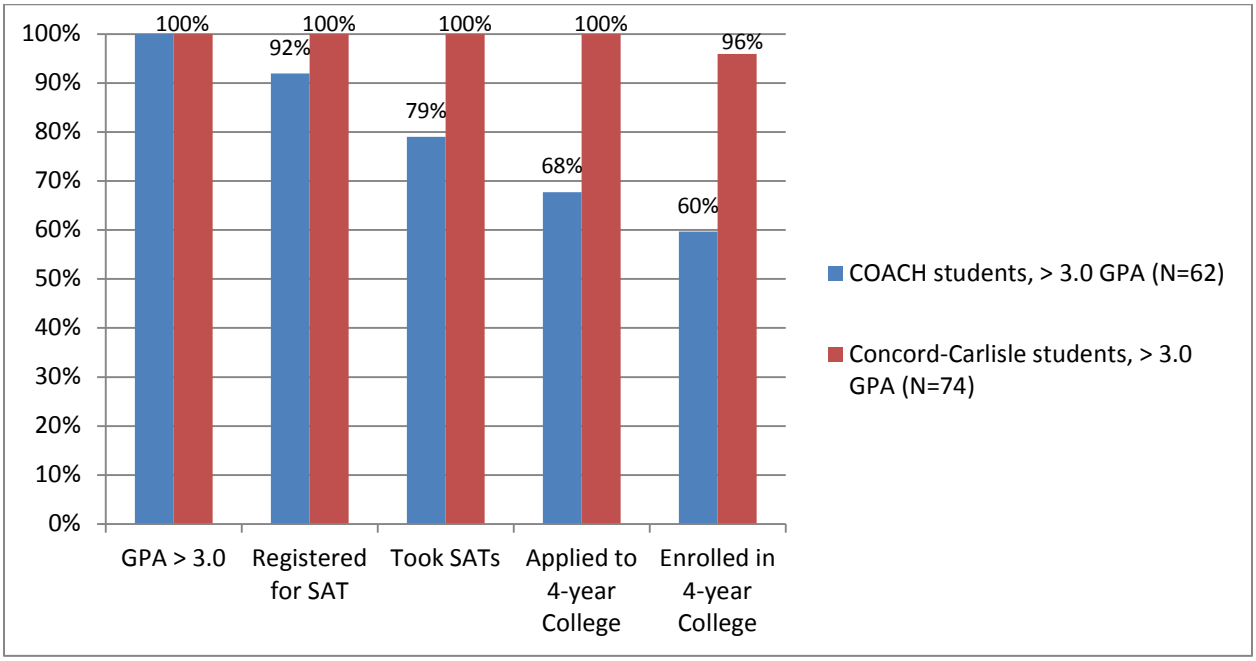


Figure 2: Salem-Keizer School District high school enrollment, December 2012

Source: Salem-Keizer School District December 2012 Enrollment Report

HIGH SCHOOL	Grade 9	Grade 10	Grade 11	Grade 12	TOTAL	2010 % of Graduates Who Took SATs	2010 % Taking SATs in Senior Year	2010 % Taking SATs in Junior Year
In Sample								
McKay	525	533	444	418	1,920	46%	27%	19%
McNary	552	525	484	441	2,002	35%	30%	5%
North	507	465	438	391	1,801	34%	27%	7%
South	505	518	451	439	1,914	46%	37%	9%
Sprague	431	457	387	422	1,697	44%	40%	4%
West	441	435	404	433	1,713	43%	36%	7%
Sample Total	2,961	2,933	2,608	2,544	11,047	38%	28%	10%
Out of Sample								
Early College HS	49	40	44	75	208	NA	NA	NA
Roberts SLC	18	27	51	46	180	NA	NA	NA
Roberts Credit Lk		3	46	100	149	NA	NA	NA
Teen Parents	2	9	25	73	109	NA	NA	NA
Roberts SK Online	10	20	25	44	99	NA	NA	NA
Sophomore Conn		38			38	NA	NA	NA
Out of Sample Total	79	137	191	338	783	NA	NA	NA
Grand Total	3,040	3,070	2,799	2,882	11,830	NA	NA	NA

Figure 3: Department of Education Proposed College Scorecard

Source: TBD

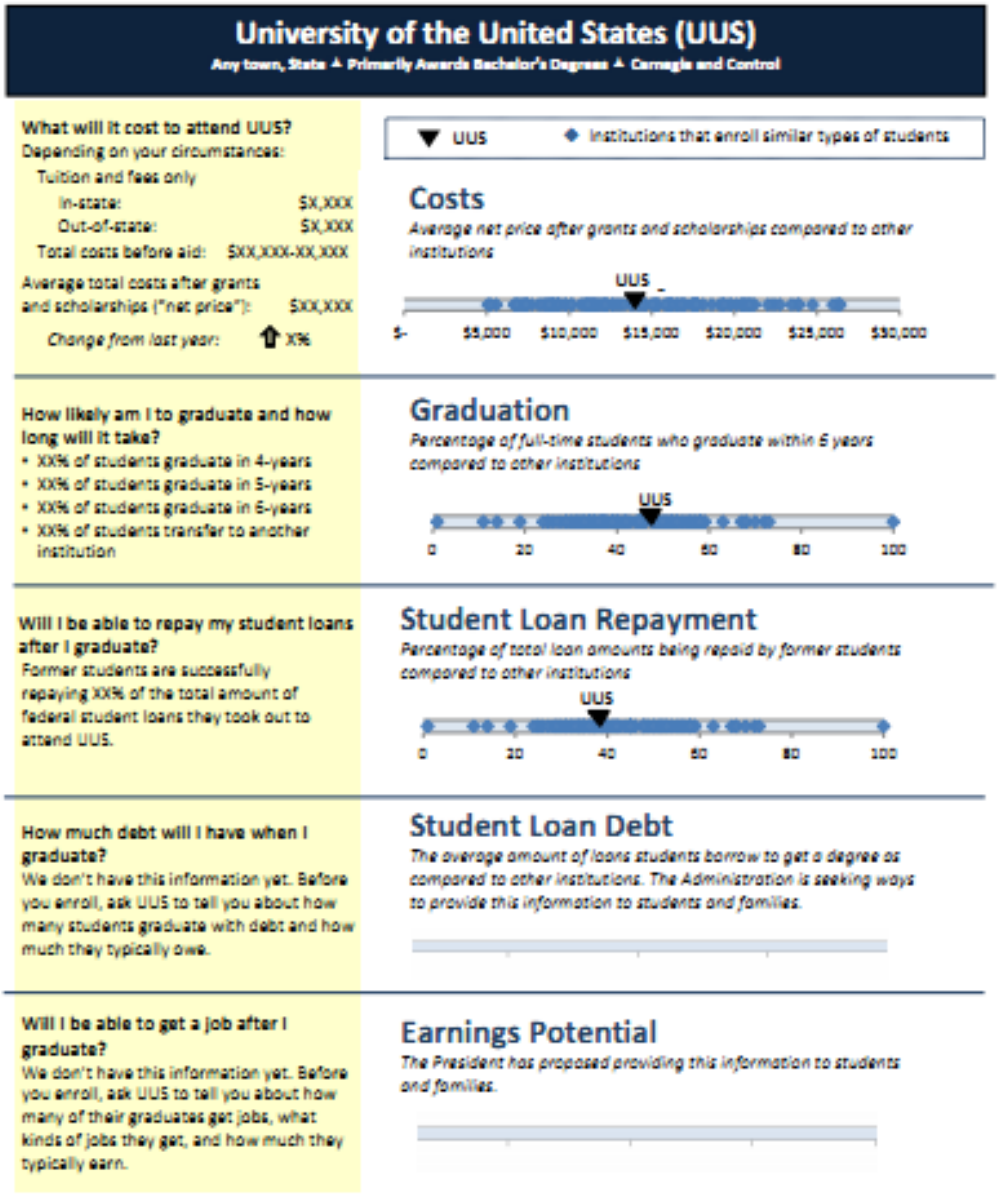
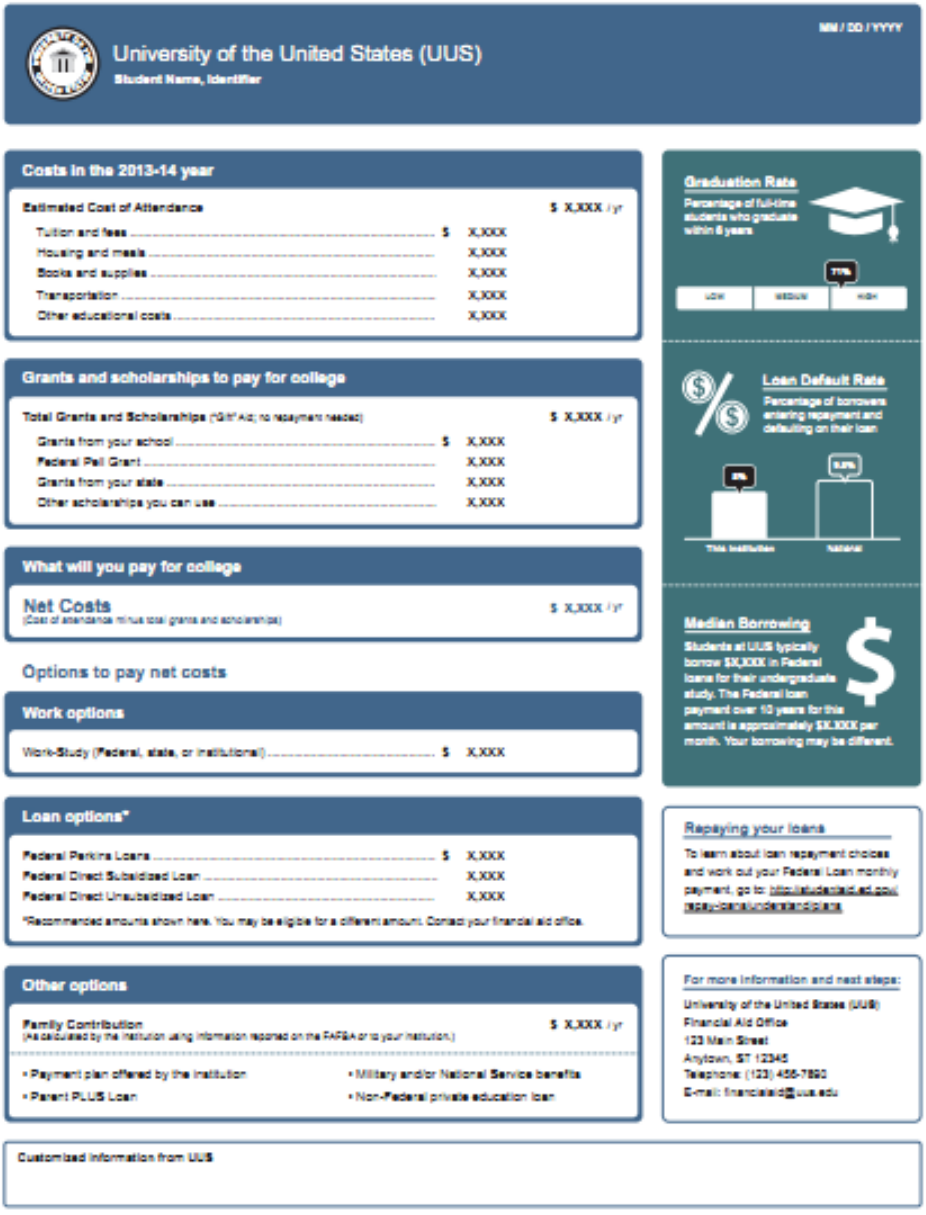


Figure 4: Department of Education Financial Aid Shopping Sheet

Source: TBD



MM / DD / YYYY

University of the United States (UUS)

Student Name, Identifier

Costs in the 2013-14 year

Estimated Cost of Attendance — $ X,XXX / yr

Tuition and fees	$ X,XXX
Housing and meals	X,XXX
Books and supplies	X,XXX
Transportation	X,XXX
Other educational costs	X,XXX

Grants and scholarships to pay for college

Total Grants and Scholarships (Gift Aid; no repayment needed) — $ X,XXX / yr

Grants from your school	$ X,XXX
Federal Pell Grant	X,XXX
Grants from your state	X,XXX
Other scholarships you can use	X,XXX

What will you pay for college

Net Costs (Cost of attendance minus total grants and scholarships) — $ X,XXX / yr

Options to pay net costs

Work options

Work-Study (Federal, state, or institutional)	$ X,XXX

Loan options*

Federal Perkins Loans	$ X,XXX
Federal Direct Subsidized Loan	X,XXX
Federal Direct Unsubsidized Loan	X,XXX

*Recommended amounts shown here. You may be eligible for a different amount. Contact your financial aid office.

Other options

Family Contribution (As calculated by the institution using information reported on the FAFSA or to your institution.) — $ X,XXX / yr

- Payment plan offered by the institution
- Parent PLUS Loan
- Military and/or National Service benefits
- Non-Federal private education loan

Graduation Rate

Percentage of full-time students who graduate within 6 years

Loan Default Rate

Percentage of borrowers entering repayment and defaulting on their loan

Median Borrowing

Students at UUS typically borrow $X,XXX in Federal loans for their undergraduate study. The Federal loan payment over 10 years for this amount is approximately $X,XXX per month. Your borrowing may be different.

Repaying your loans

To learn about loan repayment choices and work out your Federal Loan monthly payment, go to: http://studentaid.ed.gov/repay-loans/understanding/plans

For more information and next steps:

University of the United States (UUS)
Financial Aid Office
123 Main Street
Anytown, ST 12345
Telephone: (123) 456-7890
E-mail: financialaid@uus.edu

Customized information from UUS

Figure 5: Power Analysis

	Power		
	Seniors	**Juniors**	**Combined Sample**
3% effect size	45%	70%	65 %
5% effect size	81%	97%	96%
Assumed Control Group Mean	28%	10%	38%
Control N	1675	1675	3350
Treatment N	837	837	1675
Significance level	0.05	0.05	0.05

As indicated above, the sample sizes are sufficient to detect 5% effect sizes with good power, but are less robust at the 3% level. A 5% effect size assumption is not unreasonable, but it will be important to design the treatment for maximum effect as effect sizes may be negatively affected by a number of factors. For instance, some portion of the sample will qualify for FRPL via direct qualification—18% of FRPL recipients nationwide are qualified via matching records against SNAP and other federal payments databases. These recipients may pay less attention to FRPL communications than other recipients who need to fill out the form each year. In addition, since there are a large number of Hispanic students, an unknown proportion will be undocumented or have undocumented parents. This will also depress effect sizes.

Figure 6: Alternative non-randomized experimental design

Treatment Allocation: In this alternative approach, to be used if the school district does not wish to randomize treatments or if I assess that the risk of treatment leakage among parents in the same school is high, I would allocate the six Salem-Keizer high schools to treatments as follows:

1. School A, B, C = Treatment Group 1
2. School D, E, F = Treatment Group 2

The analysis will embed a regression discontinuity design—to capture treatment effects—in a hierarchical linear model—to capture school-level effects. I will use prior year data from each school to provide a counterfactual. For example, for School A, I will combine data on SAT registration and completion for 2013/14 juniors and seniors (treated with Treatment A) with similar data for 2012/13 juniors and seniors (untreated). (Note that this means that a 2012/13 junior who is a senior in 2013/14 will appear twice in the data, once as a treated individual and once as an untreated individual.)

I will estimate the following hierarchical regression model.

Level 1: $Y_{ij}=\beta_{0j} +\beta_{1j} *X_{ij} + e_{ij}$ (at student level)

Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{01}*W_j +u_{0j}$ (at school level)

$\beta_{1j} = \gamma_{10} + \gamma_{11}*W_j +u_{1j}$,

where

Yij=log odds of student i in school j registering for the SATs. (I will also estimate this model with a dependent variable of SAT completion).

X_{ij}= a vector of student level variables including cumulative GPA, junior/senior status, FRPL status (income proxy), race/ethnicity, and any other available demographic variables.

W_j= a school/year variable indicating both which school student i attended and which, if any, treatment they received. For instance, 1 = School A 2012/13 (untreated control), 7 = School A 2013/14 (Treatment Group 1). Thus, a 2012/13 junior or senior at School A would be coded with W_j= 1, while a 2013/14 junior or senior at the same school would be coded as W_j= 7. Thus, W_{1-6} indicates an untreated individual, while W_{7-12} indicates a treated individual.

$Cov(X_{ij},e_{ij},W_j,u_{0j},u_{1j})=0$.

In these equations, β_{1j} is the coefficient of interest.

Evaluating Treatment Size and Significance: The regression discontinuity element of the design requires testing for significant differences in β_{1j} at the same school in 2012 versus 2013. Thus, for School A, I will test the hypothesis that $\beta_{11} = \beta_{17}$. Rejecting that hypothesis indicates a significant treatment effect. (β_{17} - β_{11}) measures the size of the treatment effect. I will do this analysis for each school, including the control schools. So long as school-level characteristics do not change significantly between 2012 and 2013, e.g., as a result of the introduction of new programs aimed at encouraging students to complete the SATs, this approach should control well for school-level effects on SAT registration and completion rates.

Comparing the effects of the two treatments: Because the model design controls for school-level effects on the dependent variable, I will also be able to rank treatment effects by size and significance. (Again, this assumes that school–level effects are constant between 2012 and 2013.)

Figure 7: Data Analysis for Random Allocation Design

I will estimate the following logistic regression model.

$Y_i=\beta_0 + \beta_1 *T1_i +\beta_2 *T2_i + \beta_3 *C_i +\beta_4*X_i +e_i$

Where

Yi=log odds of student iregistering for the SATs. (I will also estimate this model with a dependent variable of SAT completion).

T1 = a dummy variable equal to 1 if the student was in Treatment Group 1 and otherwise equal to 0

T2 = a dummy variable equal to 1 if the student was in Treatment Group 2 and otherwise equal to 0

C = a dummy variable equal to 1 if the student was the Control Group and otherwise equal to 0

X_i= a vector of student level variables including cumulative GPA, junior/senior status, FRPL status (income proxy), race/ethnicity, and any other available demographic variables.

Evaluating Treatment Size and Significance: The regression discontinuity element of the design requires evaluating coefficients $\beta_{2.}$, β_3 and $\beta_{4.}$ For example, failing to reject the hypothesis that $\beta_{2.} = \beta_3 = \beta_4$, would indicate that the treatments had no effect on the probability of registering for/completing the SAT. If this hypothesis is rejected, similar tests will be used to evaluate treatment size and significance.

EVANS SCHOOL OF PUBLIC AFFAIRS
UNIVERSITY of WASHINGTON

December 19th, 2012

To Whom It May Concern:

I am writing this letter in support of Helen Kilber's proposal to the Association for Institutional Research's Dissertation Grant Program. Helen entered the PhD program at the University of Washington in the fall of 2011, and I have been her primary research supervisor.

Helen is proposing a novel field experiment to explore why high school students from low-income backgrounds drop out of the 4-year college pipeline. Specifically, she plans to consider the completion of the Scholastic Aptitude Test (SAT) and how a set of behavioral and policy interventions might increase completion of the test by students from a less advantaged background. This works builds on the broadening emergence of behavioral economics in the policy arena, and would address concrete tools to address what has been a persistent social class gap in pursuit of post-secondary education.

Under my supervision, Helen has had experience designing a set of small scale field experiments. We have work in progress exploring different forms of messaging to clients of a low-income credit union and a separate project on the preferences of individuals receiving housing assistance for a savings match incentive program. She has been involved at every stage of the research process for these projects, and, combined with her course work, has developed excellent foundation to pursue the proposed work.

In terms of program requirements, Helen has completed all of her required course work. She will submit her major area paper in June 2013, a key step towards her dissertation defense, which should occur in August 2013. This should put her on track to complete the work according to the schedule she proposes.

Helen and I meet regularly, and I will play an active role in monitoring the progress of the project. In addition, Helen has the full support of two of my colleagues Mark Long and Ann Bostrom. They have relevant expertise in education research and judgment and decision making, respectively, and agree that she has designed a feasible and compelling project. I will play the role of primary advisor in terms of verifying that she meets all requirements of the award and will review and approve all reports submitted based on the work.

Overall, I am confident that Helen is more than capable of carrying out this novel and timely research, and I sincerely hope that she gets the opportunity to carry it out with this award.

Please do not hesitate to contact me if I can provide further assistance.

Sincerely,

Crystal C. Hall
Assistant Professor of Public Affairs
University of Washington
Evans School of Public Affairs
hallcc@uw.edu
206.221.5237