

Financial Aid Award Letters and Student Enrollment, Borrowing, and Persistence Behavior

Dissertation Research Proposal

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Federal and state governments and higher education institutions provide a large amount of funds to support college enrollment and, in many cases, to nudge students toward specific college destinations. As expected, research demonstrates that aid is associated with increased likelihood of college enrollment (Leslie & Brinkman, 1987; Heller, 1997), yet there is evidence that some aid programs have had a limited effect on college attendance. For example, several studies have found that the Pell grant program, which represents the largest source of federal student grant aid, has had little influence on enrollment patterns of low-income students (Hansen, 1983; Kane, 1995). While it is possible low-income student enrollment would have fallen in the absence of the Pell grant program, Kane (1995) suggests students on the margin of college attendance may lack information about federal student aid or how to apply. The American Council on Education (2006) estimated that 1.5 million low- and middle-income students who might have qualified for a Pell grant did not complete an application for federal student aid for the 2003-2004 academic year, a number that has grown in recent years. This suggests that information, missed deadlines, and small bureaucratic details in program design can have a large influence on behavior.

These factors may be particularly important for low-income students who are particularly sensitive to college costs. Although low-income student enrollment has improved over time, the educational attainment gap by income has increased (Hearn, 2001). Thus, it is increasingly important to consider the effectiveness and distributional effects of aid programs. The design of an aid program has important implications for how students learn about and respond to aid and ultimately for the effectiveness and equity outcomes of an aid program. Recent research has examined how information about and simplification of the federal financial aid application can reduce complexity and uncertainty in the aid process (Bettinger, Long, Oreopoulos, & Sanbonmatsu, 2009; Dynarski & Scott-Clayton, 2006, 2008), suggesting small changes can have a large effect on behavior.

Navigating a complex financial aid system plays a crucial role in the educational pathway of promising students, and research suggests this complexity disproportionately burdens low-income students (Wyner, Bridgeland, & DiIulio, 2007). Thus, many promising students with financial need are limited by ability to pay (McPherson & Schapiro, 1998) or lack of information about aid (Kane, 1995). Federal policy discussion has turned to how institutions communicate college costs to students in financial aid award letters. In a survey of college students and their parents, Kantrowitz (2010) finds that award letters are difficult to interpret and compare. Respondents reported that many award letters lacked information on the cost of attendance, descriptions of the type of aid students would receive, and terms and conditions of loans. A recent *Businessweek* article describes “the fuzzy math in financial aid offers” (Lorin, 2012) and the difficulty families have determining net cost, even after receiving notification of the aid award. The National Association of Student Financial Aid Administrators [NASFAA] notes that differences in the presentation of aid arise in part from institutional pressures to balance the often competing goals of increasing revenue, access, and quality.

Under the Higher Education Opportunity Act of 2008, the U.S. Department of Education (ED) and the Consumer Financial Protection Bureau developed a model award letter, or “shopping sheet” (See Appendix) that includes the cost of attendance broken down by tuition and fees, room and board, travel and miscellaneous expenses; amount of aid that students do not have to pay back; net cost of attendance (cost of attendance minus financial aid that students do not have to pay back); and terms and conditions of loans. The model award letter also includes aggregate student information about the institution’s graduation rate, loan default rate, and

median borrowing. The ED released the shopping sheet in July 2012 and sent a letter to institutions asking them to voluntarily adopt the format for students applying for federal financial aid for the 2013-2014 academic year.

Despite the national policy discussion surrounding standardization of award letters, we know little empirically about how information about aid award influences student behavior, and thus the effectiveness and equity outcomes of financial aid. *This dissertation research proposes to examine how information in the financial aid award letter is associated with student enrollment, borrowing, and persistence behavior.* Specifically, this dissertation examines the following research questions:

1. How does information in the award letter affect student enrollment, borrowing, and persistence behavior?
2. Are the enrollment, borrowing, and persistence patterns of underrepresented student populations (e.g., low-income students) more or less sensitive to information in the award letter?

This dissertation research uses a randomized control trial at a public four-year institution to determine how information affects student behavior. More than 300 institutions have adopted the letter, amounting to 1.9 million undergraduates receiving the new format this year (ED, 2012). Yet, we know little about how this policy effort will affect student enrollment and financing decisions. This dissertation research will contribute to our understanding of the educational pathways of students with financial need, assist financial aid administrators in communicating college costs to students, and inform federal policy concerning interpretability and comparability of aid award letters.

In the following pages, I outline the dissertation research that I propose to undertake. I begin by discussing two theoretical perspectives that provide an understanding of how students make enrollment and financing decisions: human capital theory and behavioral economics. I then discuss the broad areas of literature on which this research builds: (1) the type of financial aid and enrollment effects and (2) the role of information and program design in efficiency and equity outcomes of financial aid programs. In the fourth section, I describe the design of the randomized control trial used to address the previously stated research questions. Finally, I conclude with a timeline for conducting the proposed research.

### **Theoretical Frameworks**

This dissertation research draws on two theoretical frameworks to understand how students make decisions: (1) human capital theory, which suggests investment in education is based on expected costs and benefits of additional education, and (2) behavioral economics, which provides a more nuanced understanding of the role information and program design play in enrollment and financing decisions.

#### **Investment in Human Capital**

Human capital is defined as activities that influence future real earnings by investing resources in people (Becker, 1962). These resources, or collective skills, influence worker productivity, which is associated with increased earnings in the labor market. Human capital can include healthcare services and facilities, on-the-job training, formal education, continuing education for adults, and the migration of people to adjust to changing labor market opportunities and conditions (Schultz, 1961).

Early economists recognized that labor and skills increase productivity in the same way machines and other forms of capital do. Adam Smith, whose work formed the foundation of much of economics, laid the framework for connecting productivity with earnings in *The Wealth*

*of Nations* (1776). Smith noted that the acquired and useful abilities realized in people represented a real cost to individuals, which was later repaid at a profit to the individual and society. It was not until the 1960s, however, that human capital and decision making surrounding the investment in human capital became widely regarded as an area of economic inquiry. Examining the relationship between investment in human capital and income distribution, Mincer (1958) proposed one of the first models demonstrating that formal (years of schooling and occupation) and informal (experience) training can be used to explain differences in income. Prior to Mincer's work, it was assumed that income followed the same distribution as ability, which was assumed to be normally distributed. However, income is not normally distributed, and Mincer demonstrated that differences in investment in human capital can explain much of the variation in wages that we observe.

Becker (1962) wrote about factors that drive the decision to invest in human capital, noting that the amount invested in human capital is a function of the expected return on investment. As a result, in determining how much to invest in human capital, Becker proposed that people consider the expected costs and benefits, financial resources, academic ability, perceived labor market opportunities, and personal tastes and preferences. He also suggested that the decision to invest involves risk and uncertainty because the return on investment is delayed and often unknown at the time of investment.

Examining the decision to invest in human capital in postsecondary education specifically, the expected costs associated with investment include the direct cost of attendance (minus financial aid), the indirect cost (foregone earnings), and the time spent in school. Although the direct costs are relatively easy to determine (tuition and fees, additional travel expenses), the indirect costs (foregone earnings) are harder to calculate (Schultz, 1961). The expected benefits associated with investment include the expected earnings for degree completion and time spent in the labor force. However, because many students who attend college do not complete a degree, benefits are also affected by the probability of earning a degree and expected earnings for students who attend but do not complete a degree (Paulsen & Toutkoushian, forthcoming). The decision to invest is then influenced by the present value of the expected net benefits, or the expected gross benefits minus the expected costs, and can be expressed as:

$$E(NB) = \sum \frac{\text{prob}(I^c) - (1 - \text{prob})(I^a)}{(1+r)^t} - \frac{(DC - \text{Finaid}) + IC}{(1+r)^t}$$

Where  $\text{prob}(I^c)$  is the probability of completing a degree multiplied by the expected earnings for earning a degree;  $(1 - \text{prob})(I^a)$  is the probability of attending but not earning a degree multiplied by the expected earnings for attending but not earning a degree;  $DC$  are the direct costs;  $IC$  are the indirect costs (expected earnings for not attending college). The expected costs and benefits are also affected by the number of years in school and number of years in the labor force, indicated by the summation sign, and discounted to the present value, indicated by dividing each by  $(1+r)^t$ .

As a result, the expected gross benefits are influenced by changes in the expected earnings of completing and attending but not completing, the expected probability of completing, and time in the labor force. The expected costs are influenced by changes in tuition, fees, financial aid, expected earnings of not attending college, and the time spent in college. Students attach utility to each of the costs and benefits and base decisions on the associated utility, which is why we observe some students whose net benefit of attending college is positive choosing not

to enroll (DesJardins & Toutkoushian, 2005). Thus, the decision to invest in higher education can be modeled as:

$$U[E(NB)] = U[E(GB)] - U[E(C)]$$

In other words, the utility associated with the expected net benefit is a function of the utility associated with the expected gross benefits and expected costs. Typically, as the net benefit of a decision decreases, the utility also declines, and as a result, demand will also decrease.

*Government involvement in investment in human capital*

Generally, public subsidization follows two approaches to postsecondary education finance (Hearn & Longanecker, 1985). The first approach is to maintain low tuition levels through broad subsidization of higher education. The low tuition/low aid model reflects the belief that higher education produces social benefits that justify extensive public expenditure. Indeed, educational attainment is associated with many positive externalities, including increased tax revenues, decreased reliance on social insurance programs, and greater civic participation (Baum, Ma, & Payea, 2010). However, because these benefits accrue to society rather than individuals, individuals do not consider these benefits when deciding whether to invest in human capital. Rather, people invest in human capital to the point where the private marginal benefit of an additional year of schooling is equal to the private marginal cost of the additional year. Because the total marginal benefit (social and private) is larger than the private marginal benefit, people under-invest in education from a socially-optimal standpoint. As a result, public subsidies for education lower the direct cost of education and encourage more people to invest in higher education.

The low tuition/low aid, or broad subsidization, approach to postsecondary education finance has been criticized for inefficiency because it provides financial support for many students who would attend college regardless of the significant subsidization needed to maintain low tuition levels. Hearn and Longanecker (1985) also argue that this finance approach is inequitable because it provides higher levels of support through subsidies for wealthier students who attend college at much higher rates than low-income students.

The second approach to financing postsecondary education is through a combination of higher tuition levels and generous financial aid targeted to students who are on the margin of college attendance. The high tuition/high aid, or tuition rationalization, model attempts to eliminate students' ability to pay as a factor in college enrollment. This targeted approach to financing is more efficient than broad subsidization because it reduces the amount of money spent as a transfer payment to students who would attend college regardless of subsidization and directs money to students on the margin of college attendance (Kane, 1995). This approach to financing postsecondary education has been widely adopted in the United States in recent decades.

The high tuition/high aid model reflects the belief that because the benefits associated with higher educational attainment rates are private and public, the cost should be shared by individuals and the government. Indeed, many studies have demonstrated that higher education is associated with increased personal earnings, even after accounting for the indirect costs and the probability of not completing a degree (Toutkoushian, Shafiq, & Trivette, 2011). Because students are not randomly selected into college, it is likely some of the observable and unobservable characteristics that make some students more likely to enroll or to enroll in a more selective institution are also likely to be rewarded with higher wages in the labor market (Dale & Krueger, 2002). This leads to upwardly biased estimates of the relationship between education and earnings. Using instrumental variable and matching approaches, studies that correct for this

ability or selection bias still find that education is positively associated with earnings (Angrist & Krueger, 1991; Card, 1994; Dale & Krueger, 2002; Kane & Rouse, 1995).

From a conceptual perspective, financial aid lowers the expected costs associated with college attendance, which increases the expected net benefit of attending. As a result, human capital theory predicts that lowering the direct cost of attendance, either through subsidization to maintain low tuition levels or targeted financial aid, increases the expected net benefit. This is then associated with an increase in the utility associated with college attendance, which leads to an increase in demand for college.

Although human capital theory provides an understanding of how student behavior will be affected when expected costs and benefits change (e.g. demand for higher education will decrease when tuition and other costs associated with enrollment increase), it provides little insight into how students perceive and evaluate the costs and benefits and how they attach utility to costs and benefits. For this, I draw on behavioral economics, which builds on neoclassical economics to examine how information, perception, and preferences influence judgment and decision making.

### **Behavioral Economics**

Empirical evidence suggests the returns to earning a degree far outweigh the costs associated with attending college (Angrist & Krueger, 1991; Baum, Ma, & Payea, 2010). The returns to higher education for low-income students seem especially strong, especially when considering the selectivity of the institution that students attend (Dale & Krueger, 2002). Yet, low-income students still enroll in higher education at lower rates than other students. The expectations gap by income level has essentially closed and low-income student participation rates have improved over time but the educational attainment gap by income has grown (Hearn, 2001).

A critical assumption of the high tuition/high aid, or tuition rationalization, model is that aid is a perfect substitute for low tuition levels (Hearn & Longanecker, 1985). However, differences in educational attainment rates despite extensive, targeted financial aid programs at the state and federal levels suggest aid may not be a perfect substitute for low tuition. For example, the Pell grant program, the largest federal student grant aid program, appears to have had a limited effect on enrollment behavior of low-income students (see Hansen, 1983; Kane, 1995). This points to possible flaws or limitations in the design of an aid program that have important implications for how students respond to increased government support of financial aid. In turn, this may decrease the efficiency and equity outcomes of financial aid programs.

Under a tuition rationalization model, student behavior patterns should be unchanged when aid is substituted for low tuition. However, this requires that decision makers have complete information about prices and aid, that they process this information and make decisions in methodical, rational ways, and that their preferences are stable and well-defined (Hearn & Longanecker, 1985). Yet, much research suggests that students' response to tuition and aid are more nuanced, often in systematic ways, than neoclassical economic theory might suggest. For example, in reviewing student demand literature, Leslie and Brinkman (1987) find students are more sensitive to changes in tuition than to equivalent changes in aid. Students are also sensitive to the complexity and uncertainty associated with applying for federal student aid (Bettinger et al., 2009; Dynarski & Scott-Clayton, 2006, 2008), and to the framing and context of aid awards (Field, 2006; Harbaugh, 2009; Monks, 2009).

Drawing from economics and psychology, behavioral economics provides insight into why people do not always respond to incentives and policy in anticipated ways, especially in

decisions that involve risk and uncertainty or in decisions that require present sacrifice for future gain. Rather than replacing neoclassical economic theory, the field of behavioral economics draws on psychology to provide a deeper understanding of how people attach utility to expected costs and benefits to provide a more nuanced model of decision making and choice (Wilkinson, 2008).

Simon (1976) provided early work on the decision-making process. He suggested that utility maximization is a complex process characterized by imperfect or incomplete information and limited time to evaluate choices, leading to the concept of bounded rationality. Choices thus involve mental short cuts, in this case satisficing, to simplify the decision-making process by selecting the best choice given time and information constraints. Kahneman and Tversky's (1974, 1979) early work on prospect theory formed much of the foundation of behavioral economic theory. Prospect theory proposes that people rely on heuristics, or mental short cuts, in decision making to reduce the complexity associated with evaluating choices and assessing probabilities of outcomes. These heuristics introduce anomalies or systematic bias into decision making that account for some of the behavior that appears to deviate from neoclassical economic theory. In the following sections, I describe several of these heuristics and discuss how they relate to college enrollment and financing decisions.

#### *Loss aversion and decision weighting*

In editing and evaluating choices and outcomes, people process gains and losses in different ways. Specifically, it appears as though utility derived from a gain is less than the disutility derived from a loss. For example, Kahneman and Tversky describe a series of experiments in which the majority of subjects were more willing to accept a sure \$3,000 (expected value = \$3,000) than a probability of .80 to gain \$4,000 (expected value = \$3,200). When it comes to losses, however, the majority of subjects demonstrated risk-seeking behavior, preferring a .80 probability to lose \$4,000 (expected value = \$3,200) to losing a sure \$3,000 (expected value = \$3,000). This research suggests that people are more willing to accept a gamble, or prospect, to avoid a sure loss when it involves losing money than when it involves gaining money. This aversion to loss can explain why students respond asymmetrically to equivalent changes in tuition and aid. For example, students are more sensitive to increases in tuition, which is seen as a loss, than to increases in aid, which is seen as a gain, even when the net cost is unchanged.

While loss aversion provides an explanation for why some financial aid programs have had limited effectiveness in increasing student enrollment, knowing how students assess probability and uncertainty can improve our understanding of how students make college decisions. One of the ideas proposed in prospect theory is that judgments about the probability of an event occurring often deviate from the statistical probability of the event occurring (Tversky & Kahneman, 1974). In other words, people attach decision weights to different outcomes that are often not based on objective probabilities. As a result, people are not very accurate in assessing risk and probability. For example, people tend to overestimate the likelihood of rare events (e.g., natural disasters, terrorist attacks, winning the lottery). People are also more sensitive to changes in probabilities at the boundaries of impossible, 0, to certain, 1, than to equivalent changes in probabilities further from the boundaries. For example, people are more sensitive when the probability of an event changes from .9 to 1 than when it changes from .6 to .7 (Tversky & Kahneman, 1992).

The decision weights that people attach to outcomes and the difficulty people have assessing probability are important in the decision to invest in human capital because the

probability of completing a degree is a factor that students consider in making college choices. Thus, it is possible that providing aggregate information about student graduation rate, loan default rate, and median borrowing on the model award letter will lead some students to make different decisions about enrollment, borrowing, and persistence based on being provided with more information about the risks, uncertainty, and costs of higher education.

#### *Framing effects*

Research on framing effects suggests the choices that people make are influenced by the context in which they are presented. Research has found that the presentation of a choice as either positive or negative affects how people evaluate options and make decisions (Tversky & Kahneman, 1981). Although the framing of a choice may be included in the utility that people attach to different choices in the neoclassical economic model, the model provides little explanation for how the specific context in which a choice is framed influences expected costs and benefits. Yet, as Monks (2009) demonstrates, there is some evidence that presenting aid to students that is the equivalent of the previous year's tuition increase makes a difference in enrollment decisions, even though net cost is unchanged from year to year. Similarly, it is possible that distinguishing loans in the award letter as an option to pay the net cost of attendance rather than as a reduction in the net cost of attendance may result in students evaluating college finance choices differently, resulting in changes in behavior.

#### *Status quo or default bias*

Behavioral economics emphasizes the importance of the default option, or status quo, in decision making. The default option is the choice that people make if they do not make a different choice; in other words, it is the selection that is made for people if they do not explicitly indicate a different preference. Much research demonstrates that the default option is a powerful mechanism in decision making. The importance of defaults has been used to study retirement savings behavior. Although people consistently report that they want to save more for retirement, many never adjust the default savings contribution and as a result, their retirement contribution is often not linked with salary increases and does not change as someone nears retirement (Thaler & Sunstein, 2009). Thus, behavioral economics suggests that small nudges and adjustments to defaults can have a large influence on behavior.

In federal financial aid, this concept is particularly important because students have to submit an application to be considered for financial aid, yet there is a great deal of uncertainty and complexity surrounding the application that deters many from even applying (Bettinger et al., 2012; Dynarski & Scott-Clayton, 2006, 2008). There are several default options in the presentation of award letters that may influence student behavior. For example, when a student signs the award letter to approve the aid package, they accept the terms and conditions of loans included in the package unless they explicitly indicate that they will not borrow. Although the model award letter does not alter this default option, it may alter borrowing behavior by providing more information to students about terms and conditions of loans.

#### *Intertemporal choice*

In choices that involve present sacrifice for future gain, people weigh gains and losses differently based on how far removed the gains and losses are from the present. Typically, people underestimate their utility for future gains, displaying preferences for allocating resources toward the present. As a result, people may discount future benefits associated with a current investment and underinvest based on this discount. The decision to invest in higher education, similar to many other decisions involving investments, has a strong intertemporal component. In deciding to invest in higher education, students delay current consumption with the expectation

of future gain. Information included in the award letter about aggregate graduation rates and earnings of graduates could lead to higher or lower levels of enrollment and borrowing based on the opportunity cost (foregone earnings) with which students are faced.

### **Related Literature**

This dissertation research draws on literature from two broad areas of study: (1) financial aid policy and enrollment effects of these policies and (2) the role of information and program design in motivating student behavior. The first provides an overview of federal, state, and institutional financial aid policies and empirical work demonstrating how these policies are associated with patterns in student behavior. The second area of work examines how program design can act as a barrier to efficiency and equity outcomes of aid programs.

### **Financial Aid Policy and Enrollment Effects**

As previously discussed, there are two divergent approaches to government financing of postsecondary education (Hearn & Longanecker, 1985): (1) maintaining low tuition levels through broad subsidization of higher education, and (2) a combination of higher tuition levels with financial aid targeted to those on the margin of college attendance. Higher education in the United States has shifted to a high tuition/high aid model, but aid has been slow to keep up with rising tuition levels. Over the past 30 years, tuition has increased faster than the prices of many other goods and services, family income, and aid (College Board, 2011). Despite the growing gap between tuition and aid levels, a complex system of federal, state, and institutional financial aid programs have developed. In the following sections, I outline several of these financial aid programs and the empirical work that examines the effect of the programs. In the final section, I discuss the role of information and program design in maximizing the enrollment effects of financial aid.

#### *Federal student financial aid*

Early federal student financial aid policy was closely linked to economic development and global competitiveness goals. In the 1950s, the federal government began providing loans to students studying in fields considered important to national defense and economic development, including science, technology, engineering, and mathematics [STEM] fields and foreign languages. With the War on Poverty and the Coleman commission's report on inequality in educational opportunity in the 1960s, emphasis shifted toward equity and increasing access to higher education for students who would otherwise be unable to attend. The Higher Education Act of 1965 formed the basis of federal student financial aid, consisting primarily of subsidized and unsubsidized student loans and the Basic Educational Opportunity Grant, later renamed the Pell grant. Financial aid, which was given directly to students regardless of institutional choice, was awarded on the basis of demonstrated financial need.

The Pell grant, which represents the largest federal student grant aid program, awarded \$14 billion to 5.3 million undergraduates in 2007. Targeted toward low-income students, it is estimated that 90 percent of dependent Pell recipients come from households earning less than \$40,000 annually (Mercer, 2008). Despite the large amount of public resources directed toward supporting access to higher education through the Pell grant, empirical research suggests the program has had a limited effect on enrollment behavior of low-income students. In one of the first studies to examine the effect of the Pell grant, Hansen (1983) found that increased federal support of student financial aid had no effect on low-income student enrollment. Hansen's study, however, has been criticized for relying on a small number of years in the analysis, making it difficult to detect a change in enrollment patterns. The study also includes males in the analysis even though their enrollment patterns were disrupted by the Vietnam War and subsequent draft

during the years of the study. Hansen also suggests that it is possible that low-income student enrollment could have actually decreased in the absence of the Pell grant program. Using only data on females in his analysis, Kane (1995) finds, similar to Hansen, that the Pell grant program is not associated with a disproportionate increase in college enrollment rates of low-income students. Kane (1995) suggests it is possible that students on the margin of college attendance lack information about the program or how to apply.

Recent growth in federal funding for higher education has come in the form of loans. Over time in real terms, federal funding for student grant aid has grown very little while funds for work-study have decreased since the 1970s (Hearn, 1998). In recent years, spending on subsidized and unsubsidized loans is more than twice the amount spent on the Pell grant program. Federal student loans represent 39 percent of all student aid, while the Pell grant program represents 20 percent (College Board, 2011). With financial aid dollars lagging far behind rising tuition levels, loans have become a major postsecondary education finance strategy. Long and Riley (2007) report that reliance on loans has increased with more students taking out loans to finance higher education and loan amounts increasing. This has important implications for enrollment rates and patterns of student enrollment because willingness to borrow differs by income, race, and institution type with low-income, minority, and students at lower-cost institutions less willing and able to take out loans. More than other types of financial aid, loans influence the decisions students make during and after college, such as major selection and likelihood and timing of taking out future loans for buying a home and attending graduate school (Long & Riley, 2007).

Field (2006) examines this psychic cost of debt in a law school financial aid experiment in which students were awarded one of two financial aid packages that were monetarily equivalent but different in amount and duration of debt. Field finds that students who were awarded a tuition waiver were twice as likely to matriculate as students who were offered a loan repayment plan in which they would take out loans that would then be repaid by the institution. Students who were offered the tuition waiver were also more likely to work in public sector law, suggesting again that the psychic cost of debt has a large influence on decisions that students make during and after school.

#### *State student financial aid*

As discussed earlier, broad subsidization of higher education helps maintain low tuition levels. Subsidization is largely accomplished through state appropriations to public (and in some cases, private) higher education institutions. Although postsecondary education finance has shifted away from a low tuition/low aid model, state appropriations still represent a major source of revenue for many institutions despite these funds representing a decreasing share of state budgets and institutional revenues over time.

State support for higher education and tuition levels vary widely. Hearn, Griswold, and Marine (1996) propose that state postsecondary finance strategy surrounding appropriations and aid is a function of differences in social norms and expectations by region, economic and social resources, and governance structure. The authors find that geographic region is most closely associated with tuition levels, with the Northeast and Midwest adopting a high tuition/high aid model and the Southwest maintaining low tuition through state appropriations. They also find that regions with low-priced entry into college were associated with higher levels of economic development, suggesting economic growth is supported by low-cost education. Interestingly, it appears as though tuition and aid levels are determined separately, suggesting there is little coordination at the state-level concerning college pricing and financing. This may suggest that

the link between tuition and aid levels is tenuous, with important implications for how successful a high tuition/high aid financing strategy will be at increasing enrollment for low-income students.

The level of state support for higher education influences enrollment patterns through tuition rates. For example, Toutkoushian and Hillman (2010) find that state appropriations are associated with increased enrollment levels and decreased out-migration of students to other states for college. Student enrollment is particularly sensitive to prices at two-year institutions – states with larger increases in tuition at public two-year institutions experienced a large decline in college enrollment (Kane, 1995). Additionally, Kane (1995) finds that states with the largest increases in tuition also experienced an increase in the educational attainment gap by income level.

There has been substantial growth in awarding financial aid on the basis of academic merit at the state level in recent years. In 1985, just nine percent of state student aid was awarded based on non-financial factors; by 2009, almost one-third of state student aid was awarded based on non-financial factors (College Board, 2011). Much of this growth is concentrated in states that have adopted broad-based merit aid programs. While there is little consensus on how many states have adopted these programs or what programs can be considered broad-based (Delaney & Ness, forthcoming), as many as 24 states have been used in studies that examine the effects of merit aid programs. Beginning with Georgia's HOPE scholarship in 1993, merit aid programs have spread throughout much of the Southeast and more recently to other regions. While the increased emphasis on merit aid does not seem to be associated with a subsequent decline in funding for need-based aid, it does represent a distinct policy shift at the state level in how and to whom aid is distributed (Doyle, 2006).

Funded through lottery revenues, tobacco settlements, state appropriations, or a combination of the three, broad-based merit aid programs are intended to (1) keep the best and brightest students in state for college, (2) increase access to higher education for students who would otherwise be unable to attend, and (3) promote academic achievement in high school and college (Cohen-Vogel et al., 2008). Much research that estimates the effect of broad-based merit aid program on student behavior uses the adoption of programs as a natural experiment, allowing researchers to employ a difference-in-differences design to examine changes within a state before and after adoption and between states that do and do not adopt.

Research suggests broad-based merit aid programs have largely been successful in their first goal of keeping the best and brightest students in state for college. In a study of Georgia's HOPE scholarship, Cornwell, Mustard, and Sridhar (2006) found that the scholarship was associated with an increase in enrollment levels resulting from a decrease in out-migration, with the increase in enrollments largely at four-year institutions. Cornwell and Mustard (2006) also found that the adoption of Georgia's program led to an increase in the average SAT score of enrolled students, a decrease in acceptance rate, and an increase in yield rate, again with the effects largely concentrated at four-year institutions. In a study of 13 states that have adopted broad-based merit aid programs, Zhang and Ness (2010) found, similar to Cornwell et al. (2006), that the adoption of a program was associated with increased levels of resident enrollment, resulting from decreased out-migration and an increase in total enrollment levels. Again, the effect was observed mainly at research and doctoral institutions, suggesting some institutions benefit more than others from merit aid programs.

Although broad-based merit aid programs have largely been successful at decreasing brain drain, evidence is mixed on whether they have been successful at increasing access to

higher education for low-income students. Merit aid is disproportionately awarded to wealthier students (Heller & Marin, 2002), leading to concerns that merit aid programs may have limited effectiveness at supporting enrollment for low-income students. Despite this, Dynarski (2002) found that although the educational attainment gap between races/income increased in Georgia following the adoption of the HOPE scholarship program, it decreased in other states with merit aid programs. To consider access, it is also important to weigh the distributional effects of programs. Singell, Waddell, and Curs (2004) find that the number of Pell recipients enrolled increased at all public institutions in Georgia following the adoption of HOPE, but the effect was observed mostly at public two-year and less selective institutions.

To measure the full effectiveness of broad-based merit aid programs, it is also necessary to consider the institutional, or supply-side, response. Some predict that when government support for educational expenses increases, institutions respond by raising tuition or decreasing institutional aid to capture the additional revenue from increased support (commonly referred to as the Bennett hypothesis). Long (2003) finds some evidence of this in Georgia. For example, although tuition levels at public institutions decreased after HOPE (likely the result of political pressures to keep tuition low to support the financial viability of the program), room and board charges increased. At private institutions, spending on institutional aid decreased. Similar to what previously discussed research suggests, these responses were concentrated at institutions with large numbers of HOPE scholarship recipients. These findings suggest that the institutional response to aid programs may limit the effectiveness of a program in achieving its desired enrollment effects and may actually lead to increasing costs for non-HOPE recipients attending these institutions.

#### *Institutional student financial aid*

Funding for institutional financial aid has grown and become increasingly complex over time. At the encouragement of institutions, the College Scholarship Service [CSS] was created in the first part of the 20<sup>th</sup> century to develop a need analysis for institutions to more efficiently and equitably target aid to those on the margins of college attendance. CSS coincided with the formation of overlap groups that included institutions whose applicant pools consisted of many of the same students. Together, the overlap groups and CSS developed a formula for estimating a student's ability to pay [later adapted by the federal government for analysis of financial need (McPherson & Schapiro, 1998)], allowing institutions to simultaneously determine award packages for students.

At the same time, a growing body of empirical work on college access and choice provided institutions with more information about how students make decisions and how institutions can set pricing and aid levels to maximize enrollment and revenue objectives. For example, Leslie and Brinkman (1987) review 25 studies on student demand and price response from the 1960s through the early 1980s and found that despite rising tuition levels, with targeted aid, enrollments also increased over the same period. These studies provide evidence that student demand for higher education is relatively inelastic, suggesting that although raising tuition shuffles students toward lower-cost institutions, overall, enrollment levels remain high.

The baby boomer generation was followed by a much smaller generation, meaning that institutions in the mid-1970s would have to compete with each other for a smaller group of high school graduates. Although the number of high school graduates has grown since the 1970s, the development of college rankings placed an increased emphasis on institutions to compete for high-ability students, leading to intense marketing and recruitment strategies for institutions to position themselves as prestigious and selective (Brewer, Gates, Goldman, 2004).

State appropriation and aid strategies also have contributed to the adoption of enrollment management practices (Ort, 2000), particularly at public institutions. State postsecondary education finance policy shapes the higher education delivery environment by influencing tuition and aid levels as well as enrollment and diversity goals for institutions. Ort (2000) argues that changing demographics within states and the increasing number of social programs resulted in increased state financial obligations. Although state funding for higher education has generally increased, state appropriations as a share of state budgets and institutional revenue has fallen over time. As a result, public (and sometimes private) institutions have increasingly relied on tuition for revenue, leading to increases in tuition. Thus, institutional financial aid plays an increasingly important role in helping institutions balance the often competing goals of increasing revenue and academic quality while maintaining access (McPherson & Schapiro, 1998). To balance these competing goals, McPherson and Schapiro argued that financial aid has shifted from a charitable activity unrelated to institutional priorities to an enrollment management tool deeply embedded in financial, enrollment, and positioning strategies.

In recent years, institutional aid has represented the fastest growing expenditure (Redd, 2000) at many institutions, but it is increasingly awarded to students on the basis of merit rather than financial need. At the same time, tuition levels increase with aid slow to keep up (College Board, 2011). These shifts suggest low-income students may bear the growing cost of higher education, with many priced out of attendance. For students who attend, there is an increased reliance on loans to make up the difference between tuition and aid, with more students taking out loans and the amount of loans increasing. At the same time, willingness to borrow differs by income, race, and institution, and loans have a larger influence on decisions that students make during and after college, such as academic major and willingness to take out additional loans (Long & Riley, 2007).

### **Role of Information and Program Design**

Previous research suggests students and parents lack accurate knowledge and information about college costs and financial aid and often overestimate the price (Avery & Kane, 2004). These findings are especially strong for low-income and minority students, who are most sensitive to changes in price. Perna (2005) suggests more research is needed on financial aid program design, operations, and marketing to determine how each of these factors influence how students perceive prices and aid and how this influences college plans and enrollment. In this section, I consider how program design and information are associated with student behavior at several stages of the financial aid process: application, composition of aid, and presentation of aid award.

#### *Information and simplification of aid application*

Similar to other social programs that require an application for eligibility, the take-up rate for the Pell grant is low. As previously discussed, the American Council on Education (2006) estimates that more than one million students who might have been eligible for the Pell grant did not submit an application for federal student aid in the 2003-2004 academic year. Almost one-third of these students received aid from another source not requiring an application. In one study, Dynarski (2003) found that the elimination of the Social Security Student Benefit Program led to a large decline in enrollments. Dynarski suggests one reason the drop in enrollments was so substantial is that the program did not require an application – students from families already receiving Social Security benefits were automatically enrolled. This demonstrates the importance of default options, or the decision that is made when someone does not take any action, in program design and effectiveness.

Recent research has focused on simplifying and reducing the complexity associated with applying for federal student aid. Dynarski and Scott-Clayton (2006, 2008) argue that the FAFSA form rivals, and possibly surpasses, the complexity of tax forms. They suggest that the complexity of the application creates a cost that weighs particularly heavily on students who are on the margin of college attendance – the very students the application is intended to assist. Dynarski and Scott-Clayton used data from the National Postsecondary Student Aid Study to replicate the current distribution of aid. By subsequently deleting pieces of data used in determining need, they find that by eliminating 80 percent of the FAFSA, the Pell grant award and subsidized loan amount changes by less than \$100 for most students. The authors suggest that if we are willing to tolerate minor imperfections in measuring ability to pay, the complexity and uncertainty associated with completing the financial aid application can be greatly reduced.

In an experimental study, Bettinger, Long, Oreopoulos, and Sanbonmatsu (2009) examined the effect of simplifying the financial aid application process on FAFSA submission, enrollment, and receipt of additional aid. Working with H&R Block tax professionals, Bettinger et al. (2009) randomly assigned families with college-aged children to one of three groups. The first group received assistance from a tax professional completing the FAFSA, a personal estimate of aid eligibility, and information about local college costs. The second group received a personal estimate of aid eligibility and information about local college costs but no assistance completing the FAFSA. The control group received only information about local college costs. Bettinger et al. (2009) found that receiving assistance completing the FAFSA was associated with higher rates of FAFSA submission, a 29 percent increase in enrollment, and a 33 percent increase in take-up rate of the Pell grant. This experimental study suggests that the application process presents a barrier to college enrollment for many students and that simplification of program design can influence on take-up rate of federal student aid and the enrollment patterns of low-income students.

Together, these studies present evidence that missing deadlines and small bureaucratic details can have large effects on behavior, often disproportionately large when weighing the costs and benefits associated with completing an application. This emphasizes the influence of defaults and information in program design on the effectiveness and distributional effects of financial aid.

#### *Composition of aid award*

As previously noted, people rely on heuristics in decision making to reduce the complexity of evaluating and assessing probabilities and outcomes (Kahneman & Tversky, 1979). In doing so, people process losses and gains differently, preferring to avoid losses than to obtain gains. For example, Leslie and Brinkman (1987) found that students are more sensitive to changes in tuition than changes in aid. This makes intuitive sense because tuition is much more visible than financial aid, which students often do not find out about until late in their senior year of high school.

Some recent research suggests that responses to aid might be even more nuanced than this. In a financial aid experiment at one law school, Field (2006) found substantial differences in enrollment likelihood for students who were offered tuition waivers over a loan-repayment program. In the study, admitted students were randomly selected to receive one of two financial aid packages with equivalent monetary award but different in terms and conditions of the award. One group received a tuition waiver while the other group was offered loans but with the stipulation that the loans would be repaid by the institution in the 10 years following graduation. Field found that students who were offered the tuition waiver (which was a pure reduction in the

direct cost) were twice as likely to enroll over students who were offered the loan-repayment program. Students offered the tuition waiver were also more likely to pursue public sector law after graduating, suggesting that loans as a form of aid have a large influence on decisions that students make during and after school. Long and Riley (2007) offer similar findings regarding undergraduate students, suggesting loans have a larger influence on major selection and the decision to take out future loans (e.g., home mortgages) after college. These studies suggest that, as expected, students respond differently to different types of financial aid based on whether the aid has to be repaid.

Students are also sensitive to the type of aid and the framing and context of aid. Monks (2009) uses a financial aid award experiment at a Northeastern university to examine the effect of aid on enrollment. In the study, the institution awarded \$7,000 in grant aid to 200 randomly-selected admitted students. As expected, receipt of aid led to increased likelihood of enrollment. Because the aid award was equivalent to the tuition increase from the previous year, the net cost was the same for students who received the award as it was for students who applied the previous year (and received no aid). Monks found that the likelihood of enrollment was higher for students who received the aid even though the net cost was the same, suggesting the framing and context of cost matters.

In a neuroeconomics study, Harbaugh (2009) examined areas and intensity of neural activities as students were presented with financial aid awards. Preliminary results demonstrated that students are more responsive to aid when they qualified for it based on academic or financial characteristics and when it did not reduce the amount of aid available for others. This suggests that altruism may also play a role in how students respond to financial aid when they are aware of how aid is distributed.

#### *Presentation of financial aid*

Although previous research suggests information about the aid application process and type of aid can influence decisions, we know relatively little about how the presentation of an aid award affects how students understand and respond to aid in terms of enrollment, borrowing, and persistence behavior. In a survey of college students and their parents, Kantrowitz (2010) found that many families encounter difficulty interpreting and comparing financial aid award letters. Many of the award letters did not provide information on the cost of attendance and the majority included no information about unmet need, net cost, or information about interest rates, loan terms, payments, and interest over the life of a loan. Kantrowitz proposed that award letters be standardized across institutions and clearly distinguish between types of aid, terms and conditions of loans, and unmet need.

The Higher Education Opportunity Act of 2008 required the U.S. Department of Education and the Consumer Financial Protection Bureau to develop a model award letter that includes the cost of attendance broken down by tuition and fees, room and board, and travel and miscellaneous expenses; type of aid award; terms and conditions of loans; and net cost (cost of attendance minus financial aid). Although NASFAA has been supportive of this effort, the organization also notes that award letters reflect a variety of institutional priorities and thus may not always present the same information to students.

Despite recent federal policy discussion surrounding the standardization of financial aid award letters, we know little empirically about how the information provided in award letters influences students' enrollment and persistence behavior and financing strategies, which this dissertation proposes to examine. Research in this area has implications for enrollment managers seeking to balance often competing institutional goals of increasing revenue, quality, and access

and for federal policy efforts to develop award letters that are easily interpretable and comparable.

### **Methods**

This study uses a randomized control trial [RCT] to examine whether and how student behavior is affected by the presentation of the financial aid award letter at a sample institution. RCTs are considered the “gold standard” of research in many fields (e.g. medicine, epidemiology), and have increasingly become emphasized in education research with the ED shifting funding priorities toward research that identifies causal effects of policy on behavior (Angrist, 2004; ED, 2003). Previous experimental research suggests that strategic targeting and framing of aid as well as simplification of the financial aid process can influence enrollment and persistence patterns in positive ways, but we know little about how the presentation of the award letter itself is associated with student enrollment, borrowing, and persistence behavior.

#### **Econometric challenges in measuring student behavior**

There are several methodological challenges associated with measuring the independent effect of financial aid and information about financial aid on student behavior. One of the challenges in estimating the relationship between financial aid and enrollment behavior is that many of the observed and unobserved factors associated with applying for and receiving financial aid are also correlated with schooling decisions. Likewise, observed and unobserved characteristics that lead students to seek information about financial aid are also correlated with receipt of aid and likelihood of college enrollment. For example, more motivated students may be more likely to receive aid or to seek out information about aid but also more likely to enroll. Because motivation is unobservable, it cannot be included in the model estimating the relationship between aid and enrollment, which means that the resulting estimate of the relationship will reflect the covariance of aid and enrollment as well as the covariance of aid and unobservable motivation. This results in estimates of the relationship between aid and enrollment that are biased upward because motivation and other unobservable factors are likely positively correlated with receipt of aid and have a positive effect on enrollment behavior. As a result, estimates are not causal and must be interpreted with caution.

There are several ways to deal with omitted variable bias. The first is to use multiple regression, controlling for as many observable factors as possible, interpreting results with caution, and presenting possible sources and signs of bias. However, in rare circumstances, it may be possible to use a randomized experiment to isolate the effect of aid on enrollment behavior. For example, Monks (2009) uses data from a financial aid experiment at one institution in which 200 admitted students were randomly selected to receive a \$7,000 grant. As anticipated from the human capital investment model, Monks finds the likelihood of enrollment increased for students who were offered the grant, but the effect was smaller than previous estimates that do not correct for omitted variable bias suggest.

More often, quasi-experimental designs are used in an attempt to isolate the effect of aid on enrollment behavior when randomization is not possible. Many studies use the adoption of a financial aid program as an exogenous policy shock that essentially randomizes aid for some students and not for others. For example, the adoption of state broad-based merit aid programs is frequently used as a natural experiment, allowing researchers to employ a difference-in-differences design to examine differences in behavior within merit aid states before and after adoption and between states that do and do not adopt. This design has been used to demonstrate that broad-based merit aid programs are associated with increased enrollment (Cornwell, Mustard, & Sridhar, 2006; Dynarski, 2002), decreased out-migration of students to other states

for college (Cornwell et al., 2006; Zhang & Ness, 2010), and increased selectivity of public four-year institutions (Cornwell & Mustard, 2006).

Regression discontinuity [RD] designs can be used when an exogenously-established cut-off determines eligibility for an aid program. In an RD design, it can be argued that the groups directly on either side of the cut-off value are equal in expectations, or are the same on average in observed and unobserved ways (Murnane & Willett, 2011). As a result, any difference that is observed in outcomes between the two groups can be interpreted as the estimated treatment effect. The RD design requires detailed knowledge of how requirements for an aid program are established. Van der Klaauw (2002) used RD to examine the effect of aid on enrollment at an institution that calculated a continuous measure of academic ability for students and ranked them on this measure, awarding aid based on ranking. Van der Klaauw argued it was likely students directly on either side of the cut-off value were essentially identical academically and in other unobserved ways that would influence receipt of aid and enrollment behavior.

Methodologically and inferentially, randomized experiments are preferred to many other research designs because a well-designed experiment can isolate the causal effect of changes in policy on behavior. In a RCT, subjects are randomly assigned to treatment and control groups, ensuring there is no patterned relationship between characteristics of subjects in each group and assignment to treatment or control. As a result, any differences observed are due to random chance, rather than any characteristic that is associated with treatment. Groups with different levels of treatment will be the same, on average, in observed and unobserved ways, or equal in expectations (Murnane & Willett, 2011). As a result, any difference in observed outcomes can be attributed to the treatment. Means for variables of interest for the treatment and control groups can be examined for statistical similarity to determine whether the assumption of equality in expectations is met.

### **Sample institution, statistical power, and sample size**

Although experimental design is highly valued in academic and policy research for its ability to establish causality, much of this relies on the initial design of the experiment. For this reason, much care will be taken in the design of the experiment to ensure that the data collected can answer the previously stated research questions and that results can be interpreted causally. The study will be conducted at a public four-year institution, hereafter referred to as the “sample institution”. Nearly all of the students enrolled at the sample institution receive some form of financial aid from federal (mostly Pell and guaranteed student loans), state, or private sources (Fact Book, 2011).<sup>1</sup>

Sample size is based on statistical power analysis, or the ability to detect an effect if there is an actual effect. In this case, power analysis will be used to determine the number of subjects in the treatment group needed to detect an effect of treatment. Power analysis is based on: anticipated effect size (ratio of the difference between group means relative to the variability of the groups), the type of statistical analysis (two-group t-test), the alpha-level for statistical interference ( $\alpha=0.05$ ), statistical power (at least .80), hypothesis testing (two-tailed test to allow for the possibility of a positive or negative relationship between information in the award letter and student behavior) (Lenth, 2009). The amount of variance that can be explained by control variables (e.g., race, age, gender, parents’ income and educational attainment level, academic ability) in the model is also a consideration for power analysis. Typically, a pilot experimental study can help determine effect size and variance estimates, which are used in determining

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<sup>1</sup> To protect the confidentiality of the sample institution, only estimates and general information are provided in the project summary.

sample size. However, because the dissertation research timeline and institutional needs do not allow for a pilot study, anticipated effect size and variance will be estimated based on previous studies that examine student sensitivity to changes in information provided during the financial aid application process (e.g., Bettinger et al., 2009).

Outcomes variables are enrollment (whether or not a student enrolls at the sample institution in fall 2013), borrowing (amount the student borrows, source and amount from which the student borrows in fall 2013), and persistence (whether a student currently enrolled at the sample institutions enrolls again in fall 2013). To examine enrollment and borrowing behavior among first-year students, a sample of 1,000 admitted students in the treatment group will allow me to detect a small effect size (.10 standard deviation from the mean) on enrollment at 80 percent power, alpha-level of .05, and 40 percent of variance explained (Raudenbush et al., 2011). Based on the number of admitted students who enroll in a typical year, a sample of ~500 students in the treatment group will remain from which to observe borrowing behavior, allowing me to detect a small effect size (.14) on borrowing at 80 percent power, alpha-level of .05, and 40 percent of variance explained (Raudenbush et al., 2011). To examine persistence and borrowing behavior among current students, students who are currently enrolled full-time will be randomly assigned to treatment and control groups. Again, a sample of 500 students in the treatment group will provide sufficient power to detect a small treatment effect.

### **Analytic technique**

As previously mentioned, I will examine the treatment and control groups for any differences in means of treatment and control groups for observable pre-treatment characteristics (e.g., parents' income and educational attainment level, academic ability, gender, race, and age). Multiple regression will be used to estimate the effect of treatment on student behavior. When the outcome variable is continuous (e.g. amount borrowed, amount borrowed from private sources), multiple linear regression will be used; when the outcome variable is binary (e.g. enrollment, persistence), multiple logistic regression will be used. The model can be written:

$$Y_i = \beta_0 + \beta_1 Z_i + e_i$$

Where  $Y_i$  is the outcome variable of interest,  $\beta_0$  is the intercept,  $Z_i$  is a dummy variable for whether a student was in the treatment group (1 if treatment, 0 if control), and  $e_i$  is the error term. The average treatment effect,  $\beta_1$ , obtained from regression analysis is analogous to the difference in means observed using a  $t$ -test in experimental research. Multiple regression, however, allows covariates to be included in the model to reduce unexplained variance, lead to more efficient estimates, and increase statistical power (Murnane & Willett, 2011). Outcome variables, defined previously, include enrollment, borrowing, and persistence. Data will be collected on several control variables that previous studies (e.g., Hearn, 1991; Karen, 2002) and theory suggest influence student behavior. These variables include students' academic (GPA, SAT/ACT scores, number of college credit hours completed), socio-economic (parents' level of education, income, amount previously borrowed, amount and type of aid received, and whether a student is eligible for the Pell grant), and demographic (gender, age, race) characteristics.

To measure the effect of the model award letter format on student behavior, a dummy variable will indicate whether a student was in the treatment or control group (1 if treatment, 0 if control). By reducing the complexity and uncertainty surrounding college costs, I hypothesize that the model award letter will increase enrollment and persistence behavior, with a stronger effect for low-income students who are particularly affected by complexity and uncertainty. At the same time, by providing explicit information about terms and conditions of loans, the model

award letter may lead to lower levels of borrowing or shift borrowing from private to public loans, which typically offer lower interest rates.

Data also will be analyzed for treatment effect heterogeneity to determine whether subgroups of the sample (e.g., low-income students) experience a larger or smaller average treatment effect than other groups. To detect treatment effect heterogeneity, I will estimate the same regression models for different subsets of the sample (Horiuchi, Imai, & Taniguchi, 2007). However, because inefficiency increases as the number of subgroups increases and the size of each becomes smaller, care will be taken in the design of the experiment to define the different subgroups and to use sampling to ensure statistical power to detect differences in treatment effects.

### **Limitations and ethical considerations**

One of the threats to measuring the causal effect of treatment on student behavior is contamination of the treatment-control design. For example, if students initially assigned to the control group can influence their treatment, the groups are no longer equal in expectations. This risk is reduced by the security measures that institutions take to ensure only students and parents can access the financial aid award through an online system. Still, however, it is important to consider that siblings who both attend the institution could be assigned to different groups, yet as a family have access to both versions of the award letter.

Another important limitation is that this study relies on data from one institution, leading to findings that may be specific to this institution and not generalizable to a broader set of institutions or students. The sample institution, however, is similar in enrollment characteristics and financial figures to many public institutions across the country. As such, findings may serve as a starting point for financial aid administrators at other institutions. Additionally, the treatment is not the model award letter itself, but the differences between the sample institution's current award letter and the model award letter. Because award letters vary by institution, results may be more applicable to institutions with similar letters as the sample institution. There are, however, two distinct differences between the model letter and most institutions': 1) loans are listed after net cost, separate from other forms of aid, and 2) institution-specific data about graduation rate, loan default rate, and median borrowing is provided. Despite these limitations, this study provides an early examination of federal policy efforts to simplify information on college costs.

Ethical concerns often arise in experimental studies because treatment is offered to some students and not to others. However, Angrist (2004) notes that access to services and information is always limited and if access is determined randomly, everyone has an equal chance of receiving the treatment, rather than basing treatment eligibility on need or merit. This is an informational intervention in that only the information that is presented to students will change for treatment and control groups. The award amounts and composition of the award (e.g., grants, loans, and work study awards) will not change. The treatment does not withhold information, but rather provides more information about the cost of attendance and financial aid to students. The treatment has been designed to lessen risks associated with students not having enough or full information about the cost of attendance. It is important to emphasize that, as noted above, an institution's use of an award letter providing more information to students is voluntary. While the ED has recommended that institutions create and use such a letter, many institutions have chosen not to participate. The sample institution, however, has chosen to adopt the letter for a portion of students, which will become the basis of the data for this dissertation. Thus, while different students will receive different treatment conditions, none will be disadvantaged or put at risk by their assignment to a particular treatment condition.

### Timeline

The proposal was submitted to the dissertation advisory committee in October 2012. Pending approval and revisions from the committee, applications will be submitted to the Institutional Review Boards at the sample institution and the University of Georgia in December 2012. Data for this project will be collected by the sample institution during the spring, summer, and fall of 2013. Below is a timeline with key milestones and action steps leading to the completion of my doctoral degree in May 2015.

March 2013	<ul style="list-style-type: none"> <li>• Meet with administrators at sample institution to finalize research design and determine treatment and control groups</li> <li>• Apply for dissertation research grants</li> </ul>
April 2013	<ul style="list-style-type: none"> <li>• Financial aid award letters from sample institution sent to students who submitted a Free Application for Federal Student Aid for the 2013-2014 academic year</li> </ul>
May-October 2013	<ul style="list-style-type: none"> <li>• Write first three chapters of dissertation (introduction, literature review, theoretical framework)</li> </ul>
November 2013-May 2014	<ul style="list-style-type: none"> <li>• Get dissertation data from sample institution</li> <li>• Define variables and code data</li> <li>• Analyze dissertation data</li> <li>• Present findings to administrators at sample institution</li> <li>• Submit conference proposals to present dissertation findings</li> </ul>
June 2014	<ul style="list-style-type: none"> <li>• Present dissertation findings at annual meeting of the National Association of Student Financial Aid Administrators in Nashville, TN.</li> </ul>
July-October 2014	<ul style="list-style-type: none"> <li>• Write fourth and fifth chapters of dissertation (methods/data and findings)</li> </ul>
November 2014	<ul style="list-style-type: none"> <li>• Present dissertation findings at annual meeting of the Association for the Study of Higher Education in Washington, D.C.</li> <li>• Present dissertation findings at annual meeting of the Association of Public Policy Analysis and Management in Albuquerque, NM.</li> </ul>
December 2014	<ul style="list-style-type: none"> <li>• Revise dissertation based on comments from conference presentations</li> <li>• Write final chapter of dissertation (discussion)</li> <li>• Begin applying for faculty and policy positions</li> </ul>
January 2015	<ul style="list-style-type: none"> <li>• Submit draft of dissertation to advisor</li> <li>• Begin work on manuscripts from dissertation research to be submitted to peer-reviewed journals (e.g., paper on experimental design, literature review on information about financial aid and student behavior, research article with dissertation findings)</li> </ul>
March 2015	<ul style="list-style-type: none"> <li>• Dissertation defense (March 2, 2015)</li> <li>• Make final revisions to dissertation</li> <li>• Submit dissertation to University of Georgia Graduate</li> </ul>

	<p>School</p> <ul style="list-style-type: none"> <li>• Host appreciation reception at sample institution</li> </ul>
May 2015	<ul style="list-style-type: none"> <li>• Graduation</li> <li>• Continue work on manuscripts from dissertation research to be submitted to peer-reviewed journals</li> </ul>

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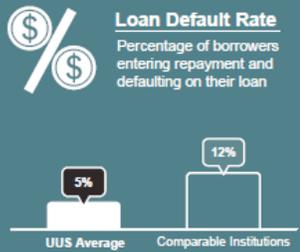
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## Appendix

<h3>Costs in the 2013-14 year</h3>		<h3>Graduation Rate</h3> <p>Percentage of full-time students who graduate within 6 years</p>  <p>71%</p> <p>LOW MEDIUM HIGH</p>
<b>Estimated Cost of Attendance for full-time enrollment</b> <span style="float: right;"><b>\$ XX,XXX / yr</b></span>		
Tuition and fees .....	\$ XX,XXX	
Housing and meals (on-campus resident) .....	X,XXX	
Books and supplies .....	X,XXX	
Transportation .....	X,XXX	
Other educational costs .....	X,XXX	
<h3>Grants and scholarships to pay for college</h3>		<h3>Loan Default Rate</h3> <p>Percentage of borrowers entering repayment and defaulting on their loan</p>  <p>5% 12%</p> <p>UUS Average Comparable Institutions</p>
<b>Total Grants and Scholarships</b> ("Gift" Aid; no repayment needed) <span style="float: right;"><b>\$ XX,XXX / yr</b></span>		
Grants from your school .....	\$ X,XXX	
Federal Pell Grant .....	X,XXX	
Grants from your state .....	X,XXX	
Other scholarships you can use .....	X,XXX	
<h3>What you will pay for the 2013-14 year</h3>		<h3>Median Borrowing</h3> <p>Students at UUS typically borrow \$XX,XXX in Federal loans over X years. The Federal loan payment over 10 years for this amount is approximately \$X,XXX per month. Your borrowing may be different.</p> 
<b>Net Costs</b> <span style="float: right;"><b>\$ XX,XXX / yr</b></span> <small>(Cost of attendance minus total grants and scholarships)</small>		
<h3>Options to pay net costs</h3>		
<h4>Work options</h4>		
Work-Study (Federal, state, or institutional) .....	\$ X,XXX / yr	
<h3>Loan options*</h3>		<h3>Repaying your loans</h3> <p>To learn about loan repayment choices and work out your Federal Loan monthly payment, go to:  <a href="https://www.direct.ed.gov/calc.html">https://www.direct.ed.gov/calc.html</a></p>
Federal Perkins Loans .....	\$ X,XXX / yr	
Federal Direct Subsidized Loan .....	X,XXX / yr	
Federal Direct Unsubsidized Loan .....	X,XXX / yr	
<small>*Recommended amounts shown here. You may be eligible for a different amount. Contact your financial aid office.</small>		
<h3>Other options</h3>		<h3>For more information and next steps:</h3> <p><b>University of the United States (UUS)</b>  <b>Financial Aid Office</b>          123 Main Street          Anytown, ST 12345          Telephone: (123) 456-7890          E-mail: <a href="mailto:financialaid@uus.edu">financialaid@uus.edu</a></p>
<b>Family Contribution</b> <span style="float: right;"><b>\$ XX,XXX / yr</b></span> <small>(As calculated by the institution using information reported on the FAFSA or to your institution.)</small>		
• Payment plan offered by the institution	• Military and/or National Service benefits	
• Parent PLUS Loan	• Non-Federal private education loan	
<h3>Customized information from UUS</h3>		