SURPRISE! YOU ARE ACCEPTED TO COLLEGE: AN ANALYSIS OF IDAHO'S DIRECT ADMISSIONS INITIATIVE

by

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DEDICATION

For my beautiful and wonderful wife, Michelle. You really are the best. For my children—Daegan, Sierra, Maddox, Kyler, and Shayla. The greatest honor I could ever receive was to be your dad.

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ABSTRACT

In an effort to improve the rate at which Idahoans 'go on' to postsecondary education, Idaho launched an initiative called Direct Admissions in the fall of 2015. This initiative informed students and their parents that the student had already been accepted to at least six of Idaho's public colleges and universities, even before the student had applied. Although the students still needed to apply, the letters guaranteed the student a seat at any of the colleges listed in their Direct Admissions letter. The goal of the initiative was to encourage students to enroll in one of Idaho's public colleges or universities through reducing the barriers to entry. It was designed to specifically encourage those students who had not yet decided on whether they would attend college. Idaho's Direct Admissions process succeeded in positively influencing the enrollment and application behavior of those students who were identified as the target populations for the process.

As this dissertation is looking at student behavior, a framework of behavioral economics, specifically Prospect Theory and the Endowment Effect, is employed to guide the understanding of the outcomes of Direct Admissions. While the analysis specifically focuses on the Direct Admissions initiative, this dissertation provides a guide for broader application of behavioral economics as a framework for public administration research. Because the design of Direct Admissions adhered to the tenants of both Prospect Theory and the Endowment Effect, the process worked for the targeted students.

A mixed methods approach is used by looking at the student-level application and enrollment data for students participating in the program as well as survey responses from students who received the letter. A series of regressions are used to evaluate how the Direct Admissions letters are correlated with a change in college enrollment behavior. A survey of Idaho students who received a Direct Admissions was also used to measure the influence the Direct Admissions letters had in the college application behavior of the students.

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CHAPTER ONE: INTRODUCTION

The Idaho State Board of Education (SBOE) unanimously approved Direct Admissions in August 2015. This new program was designed to make it easier for students to enroll in college directly from high school. This analysis asks, did it work? The research reported here employed quantitative methods to run a series of regressions on application and enrollment data collected by the SBOE and qualitative analysis on data from an SBOE survey of students who had participated in Direct Admissions. Recognizing that enrollment behavior can differ between subgroups, the quantitative analysis examined behavior among subgroups by gender, socioeconomic status, and race/ethnicity.

The qualitative analysis of survey data examined whether this initiative influenced student attitudes about postsecondary education. To conduct the survey, the SBOE collected names of students who had applied to one of the eight Idaho public institutions of higher education. Those students who had applied prior to the stated deadline of February 15, 2016 through Direct Admissions received a survey. Responses from students are coded for the influence Direct Admissions had on their attitudes toward postsecondary education. Direct Admissions was designed to make it easier for all students to enroll in education past high school. I use this study to explore a theoretical model that may explain how policies influence the behavior of a targeted audience. The theoretical framework of behavioral economics, specifically Prospect Theory and the Endowment Effect is used to help explain student behaviors and attitudes. Results of this

inquiry suggest that Direct Admissions was successful in encouraging college enrollment and in improving student attitudes toward postsecondary education. However, the influence of Direct Admissions was felt more greatly among students who were least likely to consider attending college prior to receiving a Direct Admissions letter.

This study also looks at how the framework of behavioral economics may prove useful for future policy studies in both higher education and public administration in general.

Background

The SBOE acts as both the Board of Regents for the public baccalaureate granting colleges and universities as well as the governing and policy board for K-12 public education. This is different than many states where there is a separate governing board for K-12 public education and another board for higher education. The Idaho Constitution Article IX, § 2 states, "the general supervision of the state educational institutions and public school system of the state of Idaho, shall be vested in a state board of education."

Increasing college enrollment is an effort of each state higher education governing body. These efforts include providing scholarships, offers of free college, and guaranteed admission programs (Cornwell, Mustard, & Sridhar, 2006; Farrell & Kienzl, 2009; Heller, 1999; Horn, Flores, & Orfield, 2003; Long, Saenz, & Tienda, 2010; Niu & Tienda, 2010; Perna, Rowan-Kenyon, Bell, Thomas, & Li, 2008; Pingel, Parker, & Sisneros, 2016; Taylor & Lepper, 2018). These policies are designed to encourage more students to enroll in college.

At the Board's August 2015 meeting, the eight members of the Board unanimously approved Direct Admissions. This program proactively admits every

graduating high school senior into college without the student applying. The student and their parents are sent a letter informing them of the Idaho public institutions to which the student has already been accepted. Parents were engaged in the process because of the correlation between parental involvement and college enrollment behavior (Perna & Titus, 2005; Rowan-Kenyon, Bell, & Perna, 2008).

Each student receives one of two letters based on the student's GPA and SAT/ACT score: A "Group of 6" or a "Group of 8" letter. The institutions included in each of these letters are listed in Table 1.1. Students who meet the "Group of 8" benchmark are admitted to all eight public institutions, including Boise State University, the University of Idaho, and the academic programs at Idaho State University. These universities represent the more selective institutions in Idaho. The remaining students are not admitted to Boise State University or the University of Idaho and are only admitted to the technical programs at Idaho State University. The hope is that informing students that they have already been accepted, the barriers to entry will be reduced and the student would be more likely to enroll in college.

Table 1.1 Direct Admissions Letters

Group of 6	**Group of 8**
College of Southern Idaho	College of Southern Idaho
College of Western Idaho	College of Western Idaho
Eastern Idaho Technical College	Eastern Idaho Technical College
Idaho State University - College of Technology[1]	Idaho State University
Lewis-Clark State College	Lewis-Clark State College
North Idaho College	North Idaho College
	Boise State University
	University of Idaho

[1] Idaho State University – College of Technology delivers the career and technical education programs at the university. These programs include certificate programs of varying lengths, an Associate of Applied Science degree and a Bachelor of Applied Science degree.

Included in the Direct Admission program, any application fee students pay when they complete their application form is counted toward their first tuition bill in the fall semester. For example, if a student were to be admitted to and select the University of Idaho, the $60 application fee would then be used as a deposit, which the student would see as a credit on the fall tuition bill.

The Board designed the program in the hopes that by eliminating the ambiguity of the postsecondary selection process and by "eliminating" the application fee, the process for a student to enroll in college is simplified to the point that more students choose to attend college. Idaho's plan is different than other guaranteed enrollment plans in other states.

Idaho's plan eliminates the competition between students seen in states with guaranteed percentage plans (Ehrenberg, 2004; Kain, O'Brien, & Jargowsky 2005). The Board's stated goal is that every student will have access to postsecondary education. In order to let the student know that she has access to a public postsecondary institution, each graduating student receives a Direct Admissions letter. The only barrier to receiving the letter for all eight institutions is the student's own performance, based on the student's college entrance exam score and the student's GPA. While not likely, it is entirely possible that every senior receives a group of eight letter. The Idaho policy guarantees admission to every student. Because of the differences in Idaho's program compared to programs in other states, this analysis adds to the body of research of college enrollment initiatives and their effectiveness.

The purpose of the study reported here was to examine whether the policy increased the number of students enrolling in an Idaho public college. In order to best

understand the analysis, I present a definition for terms the reader will encounter in this study. These are presented not only to help the reader better understand the study, but also allows those interested in replicating the study a framework upon which to build. The terms and definitions are presented in Table 1.2.

Table 1.2 Definitions of Terms

Term	Definition
Enrollment	Measured by attendance in an Idaho public college or university on the tenth day of the fall semester immediately after high school graduation
College	Broad term including all postsecondary institutions
Behavior	Empirical phenomenon of any observable overt act or steps taken by an individual prior to acting
Go-on Rate	The rate at which students enroll in college in the fall semester immediately after high school graduation

Idaho's Rationale

Prior to the adoption of Direct Admissions, Idaho was recognized for its low go-on rate. Idaho's go-on rate was the lowest in the country at 45.1% in 2010 as reported by the National Center for Higher Education Management Systems (see Table 1.3 and Figure 1.1). The fall 2010 immediate-from-high-school go-on rate was more than 17 percentage points lower than the national average.

Table 1.3 Percent of High School Graduates Going Directly to College - 2010

State	%
Mississippi	78.8
Connecticut	78.7
Massachusetts	73.2
New Mexico	72.4
South Dakota	71.8
Minnesota	70.9
Nebraska	69.5
New York	68.9
New Jersey	68.6
South Carolina	68.3
Georgia	67.7

North Dakota	67.4
Iowa	66.6
Indiana	65.8
Arkansas	65.4
Rhode Island	65.4
Kansas	64.7
Louisiana	64.7
New Hampshire	64.3
Maryland	64.1
North Carolina	64.1
Virginia	63.8
Hawaii	63.6
Alabama	63.2
Florida	63.1
Kentucky	62.9
Nation (Avg.)	62.5
Tennessee	62.1
Michigan	61.9
California	61.7
Ohio	61.5
Missouri	61.4
Colorado	61.2
Pennsylvania	60.9
Montana	60.5
Wyoming	60.4
Oklahoma	60.2
Wisconsin	60.1
West Virginia	59.2
Illinois	58.7
Arizona	57.9
Maine	56.2
Texas	56.2
Vermont	53.5
Utah	53.3
Nevada	51.8
Washington	48.3
Oregon	47.8
Delaware	47.3
Alaska	46.4
Idaho	45.1

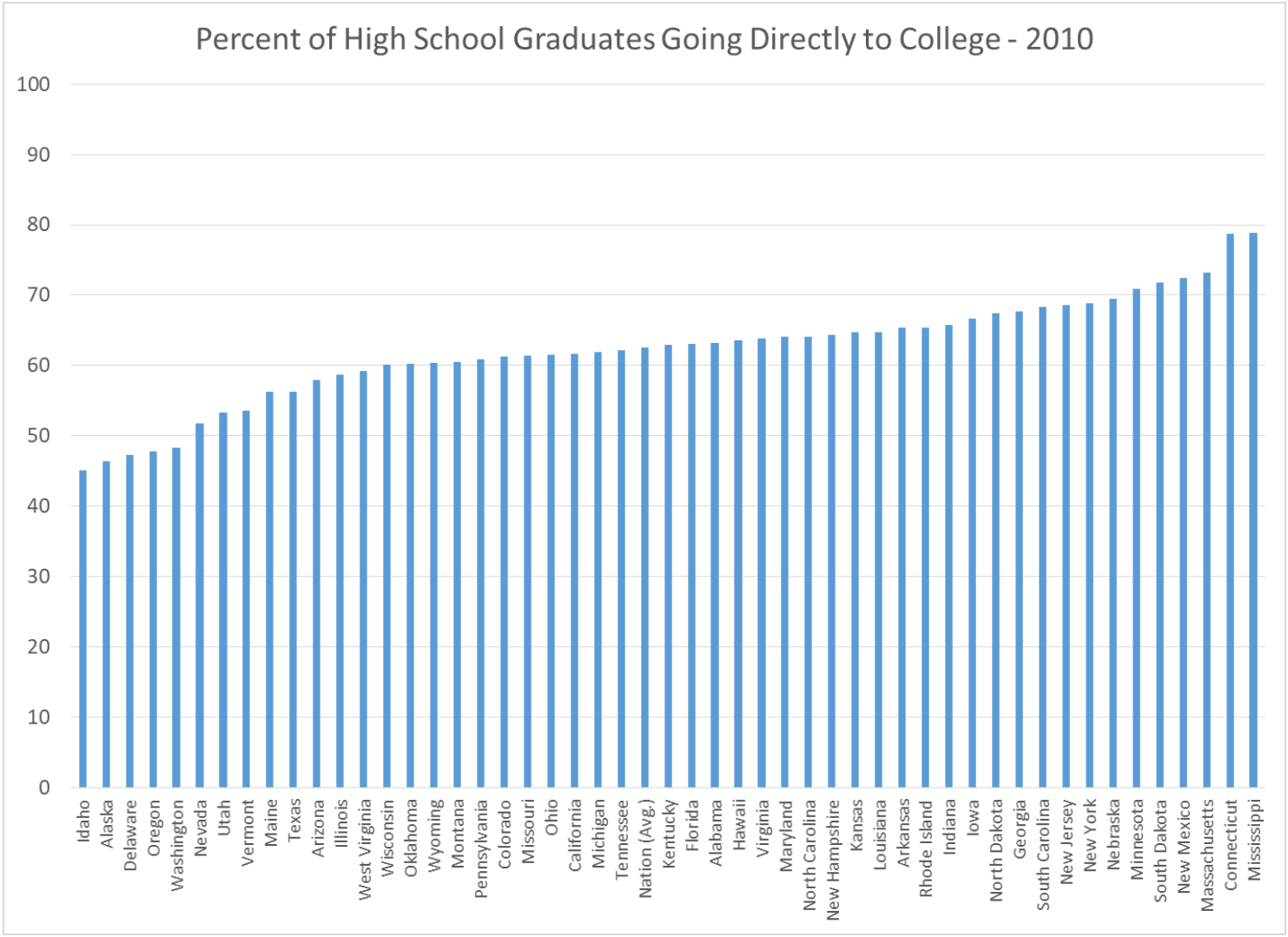

Figure 1.1 Percent of High School Graduates Going Directly to College - 2010

At the same time the go-on rate data were reported, the Center on Education and the Workforce based at Georgetown University released a report (Carnevale, Smith, & Strohl, 2010). This report, titled "Help Wanted: Projections of Jobs and Education Requirements Through 2018," was quickly recognized around the country as evidence that states needed to focus on college attendance rates. In the report, Georgetown researchers completed a state-by-state breakdown of the economy and what level of education was needed to fill the projected workforce needs. The report stated that without a substantial growth in the number of residents with a postsecondary degree or certificate, the state's economy would suffer and would lose good jobs to those states that could provide the educated workforce needed (Carnevale, Smith, & Strohl, 2010).

The low go-on rate that threatened to undermine Idaho's economy entered public debate in the mid-2000s through a series of television, radio, newspaper and online ads released by J.A. and Kathryn Albertson Family Foundation. The ads referenced the 2010 data from the National Center for Higher Education Management Systems (NCHEMS) as previously shown in Table 1.3 and connected the problem of educational attainment to low go-on rates. If high school graduates did not go on to college, those individuals would never complete college. If individuals did not complete college, the state would suffer.

The adverse effects of a low go-on rate also impacts the individual. A report from Economic Modeling Specialists International states that there is a 9:1 return on investment by earning an Idaho bachelor's degree (2015). Skills learned through a college education allow individuals to be more productive which results in higher wages (Obradovic, 2009; London, 2006). Over time, education is shown to play a vital role in

the increase to wages, especially when considering the degree a student earns (Lemieux, 2006; Walters, 2004). Not only are salaries generally higher for college-educated individuals, but the ability for those graduates to find a job is also increased.

The Federal Reserve Bank of San Francisco (2014) has noted that, "A college degree comes with higher earnings, some insurance from the ups and downs in the economy, and a path up the economic ladder" (p. 8). A study by the Bureau of Labor Statistics showed that as of November 2015, an adult with less than a high school education had a national unemployment rate of 6.9 percent. An adult with a bachelor's degree or higher had a national unemployment rate of only 2.5 percent (Bureau of Labor Statistics, November 2015). As education level increases, the rate of unemployment decreases. For Idaho's economy and for its citizens, it was clear that the state needed to increase the number of students attended college.

Who are Idaho's Students?

Idaho knows that students do not go on to college at the same rates as other states. As previously mentioned, in 2010, Idaho ranked at the bottom of the go-on percentage among all states. Go-on rates were not the only area where Idaho differed from the rest of the states (see Table 1.4). These data were collected from the U.S. Census Bureau, the National Center for Higher Education Statistics, and the U.S. Religion Census. The full list of states can be found in Table A.2 in Appendix A.

Table 1.4 Go-On Percentages and Other State Characteristics

State	Go-On %	% in Poverty	% Male	% Hispanic	% Urban	% LDS
Average of States	62.2	9.5	49.3	10.1	73.6	3.5
Idaho	45.1	9.7	50.1	10.6	70.6	26.1

College enrollment has been shown to correlate with many factors. Research has shown that factors such as socioeconomic status, race, ethnicity, gender, and urbanicity all are correlated with student enrollment behavior (Adelman, 2002; Averett & Burton, 1996; Black & Sufi, 2002; Cabrera & La Nasa, 2000; Goldin, Katz & Kuziemko, 2006; Gose, 1999; Hurtado, Inkelas, Briggs, & Rhee, 1997; Light & Strayer, 2002; McFarland, J. et al., 2018; Wagner & Blackorby, 1996; Thomas, 1980). College attending behaviors varied between subgroups. For example, higher income students enroll at higher rates than lower income students, females enroll at higher rates than males, and white students enroll at higher rates than Hispanic students. As a state with high relative poverty rates, more males than females, and a high rural population, it is no surprise that Idaho ranks at the bottom in college attendance rates.

Any factor that could result in a student deferring college attendance is a concern as delaying enrollment has shown to have a significant effect on college attendance at all (Perez-Arce, 2015). Delayed enrollment is more of a factor in Idaho than in most other states given the high number of young men who choose to serve a mission directly from high school for the Church of Jesus Christ of Latter-day Saints. As noted in Table 1.4 26.1 percent of Idaho's population identifies as adherents to the Church of Jesus Christ of Latter-day Saints (LDS), or Mormon (U.S. Religion Census, 2010). In 2012, the

President of the LDS Church announced that men would be eligible for missionary service at the age of 18, a change from what had previously been 19.[2] According to the LDS faith, missionary service is a calling from God and is strongly recommended for all men, who serve as full-time missionaries for 24 months. During that time, the vast majority of missionaries will move away from home and are precluded from taking any college courses. The impact of this age change and the emphasis on missionary service results in lower college attendance rates for LDS adherents immediately after graduating high school.

Direct Admissions Launched

In late 2014, Chuck Staben, President of the University of Idaho, approached the other public college and university presidents with a challenge to make it easier for students to enroll at their institutions. Staben described how he had gone through the University of Idaho's admission process as if he were a student and found it cumbersome. He posited that the amount of data automatically collected on students should allow the state to directly admit high school graduates into Idaho's colleges. From that suggestion, SBOE staff developed Direct Admissions and launched the program in the fall of 2015.

The belief of Staben and Board staff was that making the processes of application and admission easier would result in more students going on to college. The hope was that students who had not thought that they could go on to college, or were on the fence about their decision to go on to college, would respond to positive messaging about the

[2] The age for women to serve a religious mission changed at the same time from 21 to 19. Since that timing would allow for most women to attend college for approximately one year prior to leaving on a mission, the impact of the change in eligible mission ages is more likely to affect the enrollment behavior of men.

student's acceptance to college. The Board believed that by informing students that they had been accepted even before applying, more students would in turn apply and enroll in college since the question of the student's qualifications and eligibility had already been addressed.

Staben's hunch and the hopes of the Board are borne out in the literature. Research indicates that lower socioeconomic students are more responsive to changes in admissions policy and that changing the admissions policy to accept all students may result in as much as a 3.8 percent increase in college attendance (Bishop, 1977). Bishop found that the populations least likely to go-on are those most affected by changes in admission policy and stated that with changes in the admission policy, the proportion entering from the bottom-ability quartile would rise by 6.7 percent (p. 299). Given the demographics of the students in Idaho, Bishop's estimates could result in significant and visible increases in college enrollment in Idaho.

Purpose of Study

This study explores whether Direct Admissions is positively correlated with student enrollment directly after high school. The Idaho Direct Admissions plan was developed to reduce the barriers that students face in attending college. An evaluation of this policy then needs to ask a single question – is it working? Therefore, my research questions are focused on if and how Direct Admissions works.

My first question is "does Idaho's Direct Admission initiative predict higher rates of postsecondary attendance?" My second question is "how much influence does the Direct Admissions initiative have on a student's college application behavior?"

The intended goal of Direct Admissions is for students to attend college at an Idaho public institution. I chose to evaluate the program to see if the program positively correlates with college enrollment behavior of a student. I recognize that there are many factors that could influence a student's college enrollment behavior, such as financial aid, health, or any number of life events. This study is an evaluation of the Direct Admissions program and not a broader study on the many reasons why students do not attend college.

The first question could be answered through a quantitative analysis. By looking at the different subpopulations and their enrollment behavior, I could ascertain whether Direct Admissions correlates with increases in college attending behavior. The same demographics where Idaho differed from the state averages and contributed to the low go-on rates in Idaho could be isolated and measured for increases in college attendance. The subpopulations are low socioeconomic status students, male students, Hispanic students, and students from rural high schools. As noted previously, one population that is also considered is the LDS student population. Individual data on religious affiliation is unavailable, but other strategies to account for the LDS population are employed.

The second question requires a qualitative analysis. In order to evaluate the level of influence Direct Admissions had on a student's college application behavior, individual student information about the student's attitude would be required.

If, as Bishop (1977) concluded, students who are least likely to go on to college are most impacted by broad changes in admission policy, then Idaho should see a significant increase in the number of students deciding to attend college. If students receiving a letter that they had been admitted to at least six colleges believed applying to

college was a less risky, or simpler, decision, then we should see a positive correlation with Direct Admissions.

The other purpose of this study is beyond an evaluation of Direct Admissions. The theoretical framework selected for this study was chosen to provide empirical research in the connecting of behavioral economics and public administration. This connection is relatively new in the literature and this study provides an empirical example for how such connections can be made and the value in looking through a lens of behavioral economics when evaluating or formulating public policy.

Outline

This dissertation is divided into six chapters. The first chapter introduces the topic and provides background information on the Idaho State Board of Education and the steps that were taken to arrive at a point where the Direct Admissions initiative was adopted.

The second chapter includes a discussion of the theoretical framework used for this study. This chapter consists of a literature review and introduction of behavioral economics. I present a further refinement of behavioral economics, specifically Prospect Theory and the Endowment Effect, and introduce the connections between public administration and behavioral economics.

In the second chapter, I also provide a review of student behavior. I explore why students are exhibiting certain behavior and explore the explanatory power of my selected theoretical framework. This analysis is replicated for subgroups in Idaho relevant to the study.

The third chapter discusses the methodology for this study. This study utilizes both quantitative and qualitative techniques for this study. This chapter offers further rationale for selection of the variables used for analysis. A discussion of the qualitative techniques used, and survey design and respondent selection procedures employed are included. I also include in this chapter a discussion about the limitations of this study.

The fourth chapter reports findings from the quantitative analysis. This chapter describes the results of the linear probability models used and interprets the findings. These models look at student enrollment and how different variables affect the enrollment rate. By inserting the Direct Admissions letter into the model, the change in coefficients will allow for identifying if Direct Admissions is positively correlated with student enrollment.

The fifth chapter reports findings from the qualitative analysis. This chapter includes a discussion of a survey instrument used to collect student attitudes toward Direct Admissions and the self-reported influence the Direct Admissions letters had on the student's application behavior. Student responses about if Direct Admissions was a positive experience and how it influenced their college application behavior are presented.

The sixth chapter summarizes the research. The last chapter builds on the quantitative and qualitative analysis and provides suggestions for future areas of research and implications for practice in Idaho and in other states considering employment of a Direct Admissions process.

I present in chapter six a look at behavioral economics as a framework for public administration. I revisit how behavioral economics helps explain Direct Admissions and

suggest how a behavioral economics framework could be employed when evaluating or developing public policy.

CHAPTER TWO: THEORIES OF BEHAVIOR

The purpose of the study reported here was to explore whether Direct Admissions works. The following questions guided this study: First, "Does Idaho's Direct Admissions initiative correlate positively with student enrollment directly from high school in an Idaho public college?" Second, "If Direct Admissions positively correlates with college enrollment, how much influence does the initiative have on enrollment?"

This study employed a definition of behavior (in this case, enrollment) derived from Descriptive Psychology. Ossorio (2006) posits that behavior is a *describable* "attempt on the part of an individual to bring about some state of affairs – either to effect a change from one state of affairs to another, or to maintain a currently existing one" (p. 49). Since the study is an analysis of the policy designed to correlate with behavior, I desired a framework that focused on an individual's describable behavior. For this study, then, I employed behavioral economics as my theoretical framework. This chapter begins with a broad discussion of behavioral economics and the two relevant theories that ground this study: Prospect Theory and the Endowment Effect. It then briefly addresses why Utility Theory, a more traditional approach to explaining individual behavior, was rejected. The remainder of the chapter links Prospect Theory and the Endowment Effect to the behavior of high school seniors who used Direct Admissions and subsequently enrolled in an Idaho college.

Theories of Behavior

Utility Theory

Utility Theory suggests that after weighing all alternatives, an individual will behave in a way that provides them with the highest level of utility. Utility Theory posits that people make rational decisions and that the individual's behavior is reflective of what will bring the greatest utility to that individual. Therefore, it is not necessary for a researcher observing behavior to know all the alternatives considered by an individual, but simply look at the individual's behavior to determine what behavior will provide the greatest utility as that individual's behavior signals which alternative will provide the greatest utility. The theory is based on assumptions that have been demonstrated to limit its usefulness when considering human behavior. For example, Utility Theory posits that an individual can know and evaluate all possible alternatives and that humans will always behave rationally (Fishburn, 1968). The behavior of graduating high school students is used here to illustrate the limits of Utility Theory.

It is reasonable to believe that graduating high school students have not considered all alternatives available to them after high school graduation. To do so would be to know all alternatives related to enrolling in one of the more than 7,500 colleges and universities in the United States. Weighing alternatives would also include considering enrollment in foreign colleges and universities, not immediately enrolling in college after high school, entering military service, or foregoing postsecondary education to enter one of many possible occupations. One weakness of Utility Theory is the assumption that all alternatives will be considered. The other is that individuals behave rationally. In our illustration, graduating high school seniors may be presented with facts about positive

outcomes from completing a postsecondary credential and may still not enroll in college. Higher education has been shown to strongly correlate with increased income and has been demonstrated to have a strong positive effect on subjective well-being (Yakovlev & Leguizamon, 2012). If individuals behaved rationally, one would expect that all high school graduating seniors would enroll in college. This is not the case.

In 1959, Simon criticized this theory that individuals will behave rationally. "The normative microeconomist 'obviously' doesn't need a theory of human behavior: he wants to know how people *ought* to behave, not how they *do* behave (p. 254)." Simon recognized that Utility Theory is inadequate for explaining real world behavior and claimed that no individual can know and select between all possible alternatives to achieve maximize utility.

Thaler (2015) also argued that Utility Theory does not explain individual behavior. He suggested that Utility Theory anticipates the behavior of rational economists. To build his case, Thaler split human beings into two groups, "econs" and "humans" (2015). Econs are those for whom Utility Theory was created; those who always make rational, reasoned decisions. Humans are everyone else.

Behavioral Economics

The concept of Bounded Rationality is attributed to Herbert Simon and is one of the earliest theories in behavioral economics. Simon argued that an individual could not possibly comprehend and analyze all the possible alternatives to a decision (1947a). In that situation, a person will take the information that is readily available and make a decision that is good enough. Simon termed this process, "satisficing". Since a decision is limited to the information that an individual has at the time, someone with more or

different information may deem those decisions as irrational. The theory of Bounded Rationality began to explore the irrationality of decisions made by individuals. Simon's work on Bounded Rationality and the questioning of Utility Theory laid the foundation for a broader field of study that was named "behavioral economics".

Behavioral economics is the combination of economics and psychology. Behavioral economics continued to build off Simon's work, but really started emerging in the late 1970's. Behavioral economics analyzes the behaviors of individuals, and recognizes that, for a variety of reasons, an individual's behavior is not always rational (Madrian, 2014; Thaler, 2015; Kahneman, 2013). Individuals may exhibit irrational behavior because of incomplete information or the inability to focus on all relevant information. The final state of affairs brought about by an individual may deviate from their intended behavior due to internal factors, or external factors apply pressure on an individual that results in irrational behavior (Campbell et. al, 2011).

Behavioral Economics and Early Links to Public Administration

The connection between psychology and public administration is not new. Public administration researchers have discussed the idea of behavioral economics in the public sector as it is connected to administrative decisions and choices. Herbert Simon (1979) stated, "decision making is the heart of administration, and … the vocabulary of administrative theory must be derived from the logic and psychology of human choice" (p. 500). Dwight Waldo noted that humans make decisions based upon emotion and urges, which often may not be considered rational (Waldo, 1948). While Herbert Simon and Dwight Waldo had their very public differences, they both agreed on the need for public administration to draw from the field of psychology (Simon, 1947a, 1965, 1979;

Waldo, 1948, 1965). Simon went so far as to state that if a serious study in administration were to occur, the individual must have a foundation in psychology (1947b). Waldo and Simon joined other early authors in calling for a tighter partnership between the two disciplines (Honey, 1957; Mosher, 1956; Truman, 1945; Verba, 1961). Although researchers recommended collaboration between the disciplines, the connections took a firm hold as a result of two psychologists who expanded behavioral economics to include Prospect Theory.

Prospect Theory

Two Israeli-born psychologists (Daniel Kahneman and Amos Tversky) set out to build upon Simon's work and challenge the prevailing assumption of Utility Theory – that humans behave rationally. Utility Theory supposed that an individual's behavior will be based upon what provides the individual with the greatest utility. If an individual is presented with two options, the option where the outcome is predicted to provide the greatest utility will be the one chosen. From Kahneman and Tversky's belief that humans are not always rational, in 1979, they developed Prospect Theory, one of the most popular theories in behavioral economics in the past 40 years.

Kahneman and Tversky tested to see if people's behavior was based on a thorough examination of their potential outcomes and a set value of utility. Through a series of questions posed to experimental subjects, the authors presented their case that people's behavior is not based upon the final state of their economic outcome, but on the change from their current economic state (Kahneman & Tversky, 1979). Prospect Theory would suggest, for example, that there is a difference in utility of $100 given to Bill Gates and $100 given to your typical university graduate student. While the value of the $100 is

constant, the starting point of the two individuals may differ enough to result in two different behaviors.

Additionally, they found that people change their behavior based on the direction of the impact their behavior may have on their current economic state. This phenomenon was demonstrated through surveying individuals about hypothetical situations. Kahneman and Tversky presented a series of problems to two different groups of subjects. In Scenario I, researchers asked participants to imagine they were given $1,000. The participants were then offered two options: a) a 50/50 percent chance at either doubling their money or maintaining the $1,000 or b) a guaranteed offer of an additional $500. The possible outcomes of the first option are represented by Scenarios A_1 and A_2 in Table 2.1. The guaranteed increase is represented by Scenario B in Table 2.1. In other words, there were three possible outcomes as presented in Table 2.1.

Table 2.1 Prospect Theory Scenario I

	Probability	Outcome	Total Amount
Scenario A_1	50%	+$1,000	$2,000
Scenario A_2	50%	+$0	$1,000
Scenario B	100%	+$500	$1,500

Eighty-four percent of participants chose Scenario B. Kahneman and Tversky theorized that humans are risk averse when contemplating an increase. The vast majority of participants preferred the scenario where they were guaranteed an increase, rather than the scenario where they risked gaining no additional money.

Scenario II flipped the question around. This time participants were to imagine they had been given $2,000. They were given an option to choose between a 50 percent chance of losing $1,000 or a sure thing of losing $500 as shown in Table 2.2, represented

by the two possible outcomes to the chance proposal in Scenarios C_1 and C_2 or the guaranteed decrease in Scenario D.

Table 2.2 Prospect Theory Scenario II

	Probability	Outcome	Total Amount
Scenario C_1	50%	-$0	$2,000
Scenario C_2	50%	-$1,000	$1,000
Scenario D	100%	-$500	$1,500

The odds and the final amounts in Scenario II are exactly the same as those presented in Scenario I. In both questions, the individuals choosing Scenarios A or C have a 50 percent chance of a final amount of $2,000 and a 50 percent chance of a final amount of $1,000. Scenarios B and D both result in the individual walking away with $1,500. The only difference is the starting point, or reference point, which determines the value (positive or negative) of the choice. In the Scenario II, 69 percent of participants chose Scenario C, indicating risk seeking. The participants to this question demonstrated that when faced with a loss, they were more likely to choose a potential large loss if it also meant there was a chance that they would lose nothing.

Kahneman and Tversky argued that the survey responses provided evidence that a $500 gain is different than a $500 loss. They argued that their evidence suggested that individuals view losses as nearly twice as impactful as a gain. This meant that the slope of the line is steeper on the losses end of the graph. Moreover, they argued that when an individual's starting point is high, for example $2,000, a $100 change is not valued the same as if the starting point is low. Therefore, at both ends of the graph the line is asymptotic as gains are still viewed as positive and losses are viewed as negative, but diminishing returns mean that those gains and losses are less impactful. They displayed the plotted data as "The Value Function" (Figure 2.1).

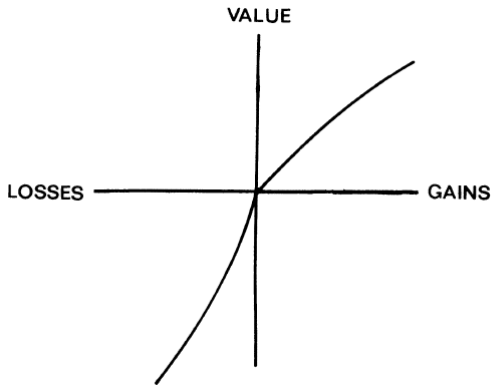

Figure 2.1 Value Function (Kahneman & Tversky, 1979)

Other researchers have used Prospect Theory to examine a variety of situations. Fryer, Levitt, List, and Sadoff (2012) and Levitt, List, Neckerman, and Sadoff (2016) found that both teachers and students react differently to positive and negative stimuli. In both of these studies, teachers and students display a greater effort when monetary increases are framed as losses rather than gains. These findings are consistent with those of Kahneman and Tversky in that the perceived magnitude of a loss is greater than the perceived benefit of gains and that individuals value a good more when they must give it up than when it can be acquired (Kahneman, Knetsch, and Thaler, 1990; Fehr, Goette, and Zehnder, 2007).

Simon, displaying his role as a sort of academic prophet wrote, "human rationality operates, then, within the limits of a psychological environment" (1997, p. 117). The original printing of Simon's book, *Administrative Behavior,* was published in 1947, long before Kahneman and Tversky developed Prospect Theory.

The Endowment Effect

Kahneman and Tversky's disciple Richard Thaler used a list of "irrational" human behaviors to explore explanations for those behaviors (Thaler, 2015). The result was the "Endowment Effect" (Thaler, 1980).

Thaler, like Kahneman and Tversky, saw behaviors that were irrational. He describes one scenario in which a person buys a case of wine for $5 per bottle. Years later, a wine merchant offers to buy the wine for $100 per bottle. Although the individual has never paid more than $35 for a bottle of wine, the person refuses to sell. Later, Thaler reveals that this scenario was based on actual events (Thaler, 2015). Although the wine was purchased at only $5 per bottle, the wine has become more valuable to the owner. It has become so much more valuable, that the owner refused to sell the wine for $100 per bottle. He wanted to understand why an individual would be unwilling to sell a good that he owns for more than its original purchase price. Thaler theorized that the value of a good increases once it becomes part of the owner's endowment (Thaler, 1980). An experiment was developed with college coffee mugs (Kahneman, Knetsch, & Thaler, 1990).

The researchers provided college coffee mugs to approximately half of a class. Students who received a mug were able to identify the price at which they would be willing to sell their mug, i.e., willingness to accept. Students without a mug were able to identify the price at which they would be willing to purchase a mug, i.e., willingness to pay.

Researchers found a significant difference in the amount of money students were willing to accept and the amount of money students were willing to pay. The students who were given a coffee mug valued the mug at much higher levels than the students who were not given a mug (see Table 2.3).

Table 2.3 Endowment Effect Experiment

Trial	Median Buyer Reservation Price	Median Seller Reservation Price
4	$2.75	$5.25
5	$2.25	$5.25
6	$2.25	$5.25
7	$2.25	$5.25

Kahneman, Knetsch, and Thaler (1990) argued that the value of a good increases the moment the individual is given the object. The researchers claim, "the act of giving the participant physical possession of the good results in a more consistent endowment effect. Assigning subjects a chance to receive a good, or a property right to a good to be received at a later time, seemed to produce weaker effects" (p. 1342).

Explaining Citizen Behavior

The combining of public administration and behavioral economics is becoming more widely accepted and studied. This is evidenced by the actions of the United Kingdom creating the Behavioral Insights Team in 2010 and with President Obama's 2015 executive order launching the Social and Behavioral Sciences Team. The goal of these teams is to develop a deeper understanding of the cognitive limitations of citizens and to better predict how citizens will behave, thus combining the actions of government with the theory of behavioral economics. The hope is that these teams could develop initiatives that are psychologically based and will encourage citizens to adopt desired behaviors (Grimmelikhuijsen, Jilke, Olsen, and Tummers, 2017; Madrian, 2014).

The intersection of public policy and behavioral economics has recently been used to inform public administration research (Rabin, 1998; Thaler and Sunstein, 2008; Congdon, Kling, and Mullainathan, 2011). For example, Dynarksi and Scott-Clayton (2006) demonstrated that program participation rates are affected by the simplicity level of an enrollment process and that complexity acts as a barrier to potential participants. Currie (2004) found that automatic enrollment processes increased participation rates in 401(k) retirement-savings programs and Medicare. Participants were less likely to forego enrollment if that enrollment was automatic. Both studies suggest that if the goal of an initiative is to increase the participation of a program, behavioral economics would encourage simplifying the admission process, up to the point of automatic enrollment into the program, as a method for increasing participation rates (Babcock, Congdon, Katz, and Mullainathan, 2012).

In another use of behavioral economics to explain citizen behavior, differences in food labeling were studied by Berg (2003). Berg noted that labeling the cholesterol content of food is costly to the food producer and provides information readily available elsewhere. Despite the cost and redundancy of information, Berg suggested that Behavioral Economics dictates that labeling the cholesterol content of food may actually encourage consumers to purchase that food. The benefit comes from offering the immediate availability of the cholesterol content to the consumer in an overloaded information environment (Berg, 2003).

Behavioral Economics of Students

The foregoing discussion suggests that simplifying a process every incoming college student must undertake, i.e. being accepted to college, would incentivize college

enrollment among students. Thaler (2015) noted that these types of policies are meant to reduce transaction costs, "mak[ing] it easier for people to make what they will deem to be a good decision, both before and after the fact, without explicitly forcing anyone to do anything" (p. 324).

The Role of Value

Increasing the ease of a process is one possible incentive to behave in a way that revises one's state of affairs. Valuing the process and its outcome is another. In *The Administrative State*, Waldo (1948) describes the subject matter of economics as the,

> "'valuations,' given introspectively for single individuals. Since individuals differ, a different 'science of economics' might result for each person… Administrative study, as any 'social science,' is concerned primarily with human beings, a type of being characterized by thinking and valuing. Thinking implies creativeness, free will. Valuing implies morality, conceptions of right and wrong" (p.181).

In other words, the behavior of individuals is based on the value they place on the outcome of one behavior over another. For graduating high school seniors, the relative value they place on college may impact their enrollment. Behavior may be driven by the value of attending college or not; attending one college over another; seeking one field of study over another; accruing credits quickly or slowly; or pursuing one level of degree over another. If the substantial money college costs is valued more than college itself, the graduating high school senior is less likely to enroll in college, particularly given the more than five years now required, on average, to complete a baccalaureate degree (Shapiro, Dundar, Wakhungu, Yuan, Nathan, & Hwang, 2016).

Past research suggests that factors such as race, gender, urbanicity, and socioeconomic status may also impact the value students place on college (Adelman, 2002; Averett & Burton, 1996; Black & Sufi, 2002; Cabrera & La Nasa, 2000; Goldin,

Katz & Kuziemko, 2006; Gose, 1999; Hurtado, Inkelas, Briggs, & Rhee, 1997; Light & Strayer, 2002; McFarland, J. et al., 2018; Wagner & Blackorby, 1996; Thomas, 1980). Another factor that plays a role in college attendance behavior is the highest level of education earned by the student's parents (Pascarella, Pierson, Wolniak, & Terenzini, 2004; Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996). In Idaho, white students enroll at higher rates than Hispanic students, Native American students enroll at lower rates than other racial groups, and females enroll at higher rates than males (McHugh, 2015). Students in eastern Idaho enroll in college at lower rates than the state average, presumably because of the high population of adherents to The Church of Jesus Christ of Latter-day Saints who serve religious missions (McHugh, 2015). In sum, whether graduating high school students value college over other alternatives may be impacted by these or a variety of any number of other factors. Prospect Theory and/or The Endowment Effect may be useful in anticipating what values graduating high school seniors bring to the notion of enrolling in college.

Direct Admissions and Prospect Theory

Under Direct Admissions, Idaho high school seniors are notified that they qualify for admission at either six or eight Idaho colleges, depending on their level of academic achievement as measured by high school grade point average and college entrance examination scores. Prospect Theory, in this instance, regards whether college-bound students will take the sure bet (acceptance at an Idaho public institution) or risk time and money waiting for an offer from a competing college. Students not subject to Direct Admissions who apply to a college and pay the application fee are taking a risk. They must wait to see, for example, if their grades are high enough, if their essay is good

enough, or if their civic engagement activities are compelling enough for acceptance. Students often do not know until they apply whether they have met the criteria necessary for acceptance. Under Direct Admissions, students know, in advance, which institutions have accepted them. Under Prospect Theory, students would be predicted to take the sure thing and not risk the negative experience (not being accepted elsewhere) that Kahneman and Tversky (1979) claim has twice the impact of a positive experience.

Direct Admissions and The Endowment Effect

The original study resulting in development of The Endowment Effect examined the value of a coffee mug once that mug was possessed by an individual. In this research, at the moment of possession, mugs became more valuable to individuals than they had been before they received them. In the case of graduating high school seniors, if students have been accepted to a college and if they express a sense of ownership over that acceptance, the offer may become more valuable than alternative offers or other options. These options and alternatives, the Endowment Effect claims, would have to provide more value to students to accept a trade. Direct Admissions may induce a sense of ownership over acceptance to Idaho colleges that students may not wish to lose by accepting an alternative.

Direct Admissions changes very little in the actual admissions process. Students who were eligible for acceptance in the Group of 8 colleges would most likely have been eligible for acceptance to those same schools had the initiative not been implemented. Direct Admissions does not allow students to attend college for free, nor does it penalize students who choose not to attend. Other than eliminating the application fee, the cost of college would be the same with or without Direct Admissions. Admissions standards

collaboratively developed by institution provosts, are similar to the standards that preceded implementation of the program. Direct Admissions and its messaging campaign from the Idaho State Board of Education, was designed to increase the perceived value of college. Prospect Theory and the Endowment Effect theorize that students receiving a Direct Admissions letter would be encouraged to enroll in an Idaho public college as that acceptance letter becomes more valuable relative to other college options. Additionally, the magnitude of influence of the Direct Admissions letter would be correlated with the relative starting point of the individual's attitude towards college.

In the next chapter, I discuss the methodology for this study. I present the argument for utilizing a linear probability model, the variables used in the model, and limitations of this model. I also explain the survey instrument used to collect student attitudes on the Direct Admissions letters and describe the limitations of the instrument.

CHAPTER THREE: METHODOLOGY

Research Design and Methods

This study into whether Direct Admissions correlates with student enrollment behavior employed a mixed-methods approach involving both quantitative and qualitative data collection and analysis. A quantitative approach allowed me to estimate the overall magnitude of the effect of the initiative. The collection and analysis of qualitative data allowed me to better understand student views on the influence Direct Admissions has on enrollment. Quantitative and qualitative data were both collected at the student level. Data collection methods, procedures, and limitations are described below.

Data Sources

When a student enrolls at any level of education in Idaho, an Educational Unique Identifier (EDUID) is generated for that student. Each EDUID follows the student through public education and, when applicable, into and through Idaho's public postsecondary institutions. If the student is in primary or secondary school, that EDUID is uploaded to the Idaho State Department of Education along with course enrollment and demographic information, which includes: race, ethnicity, gender, and free or reduced-price lunch status (FRPL). That information, for all public traditional and charter schools, is stored in the Educational Analytics System of Idaho (EASI) and updated by the schools five times each school year.

For this study, individual student-level data were collected from EASI. These data are housed indefinitely and allow authorized individuals to look at longitudinal trends in education, including the transition from public K-12 to higher education.

A separate database within EASI stores student-level data collected from each of the public postsecondary institutions in the state as well as enrollment information from private and out-of-state postsecondary institutions using information provided by the National Student Clearinghouse (NSC). The NSC is a national database that collects enrollment and completion information for all postsecondary institutions that are eligible for receiving federal financial aid.

Each individual school district in Idaho uploads the data on K-12 students to the Idaho Department of Education, which then passes it to the Idaho State Board of Education in order to calculate the Direct Admissions benchmark score for each student. These scores are calculated by reviewing a student's transcript and calculating a GPA based on the letter grades the student received and the number of credits a student has earned. College entrance exam scores are collected directly from the vendors that administer those tests. Through agreements with each of these vendors, the Idaho State Board of Education collects the student-level results of these exams.

For this study, I created a single database that combines the demographic information uploaded to the Idaho Department of Education and the college entrance exam scores collected by the Idaho State Board of Education. This information was accessible because of my role as the Chief Research Officer. Because Idaho state law prohibits the collection of religious affiliation data into EASI, I was not able to collect student-level religion data. I included the high school the student attended and county

where that high school was located. Recognizing the probable impact of religious affiliation on college enrollment, I collected the county religion data from the U.S. Religion Census. Table 3.1 looks at each county in Idaho and the percentage of adherents to the Church of Jesus Christ of Latter-day Saints (LDS).[3]

Table 3.1 Percent of Church of Jesus Christ of Latter-day Saints Adherents by County, 2010 (Highest to Lowest)

County	% LDS	County	% LDS
Madison	100.8	Lewis	19.2
Franklin	89.4	Gem	18.5
Bear Lake	84.5	Owyhee	17.5
Oneida	82.8	Washington	17.0
Caribou	76.5	Ada	15.8
Jefferson	72.3	Canyon	15.8
Fremont	64.8	Payette	15.6
Bingham	59.3	Camas	13.0
Bonneville	56.9	Boise	12.4
Butte	56.5	Elmore	11.8
Bannock	51.9	Blaine	10.6
Cassia	51.9	Valley	10.3
Power	39.0	Latah	8.6
Minidoka	38.4	Bonner	6.9
Teton	33.8	Boundary	6.8
Clark	29.2	Clearwater	6.4
Custer	27.2	Benewah	6.2
Lincoln	26.8	Kootenai	5.9
Twin Falls	24.6	Shoshone	5.4
Gooding	21.8	Nez Perce	5.0
Jerome	21.5	Adams	4.6
Lemhi	20.2	Idaho	3.9

Half of the counties in Idaho have greater than 20 percent of the county identifying as members of the Church of Jesus Christ of Latter-day Saints (LDS). Twelve counties have greater than 50 percent of the population identifying as members of the

[3] Adherents are calculated by the county of attendance. In some counties, adherent totals exceed the population as counted by the U.S. Census. Possible explanations include U.S. Census undercount, church membership overcount, and individuals' county of residence differing from county of church membership.

LDS church. On the other end of the spectrum, ten counties have fewer than 10 percent of the county identifying as members of the LDS church. The distribution of members of the LDS church suggests that in certain parts of the state, members of the LDS church are more tightly clustered together. It is assumed that a similar distribution of membership in the LDS church at the county level is seen in the high school. In the quantitative analyses, controlling for the high school the student attended would also control for the fixed effects of that high school, including the religious distribution of the students. The county in which the high school is located is therefore used in this study as a control variable for religious affiliation. This control is done by using the high school number assigned by the Idaho State Department of Education.

Idaho public colleges collect individual student data including the student's name, date of birth, and previous high school when a student applies. I used these data from the postsecondary institution to match back to the student's EDUID and the Direct Admissions letter the student received. I used the Idaho Department of Education designation of each school as an urban or rural school. This process allowed me to match a student's enrollment and attendance at a college or university to the demographic information collected by the State Department of Education and the Direct Admissions letter benchmark score developed by the Idaho State Board of Education. I deleted the EDUIDs and generated a unique research identifier so that the students in the data set could not be reidentified.

The data elements collected are listed in Table 3.2. The table lists each of the data variables, the unit of analysis for that data variable, and the structure of those data used for this analysis. Each of these variables are further described in the next section. That

section also describes how the analytical models I used for this study utilize these variables.

Table 3.2 Variables, Variable Level, and Variable Types

Variable	Variable Level	Variable Type
Enrolled	Student	Dichotomous
Direct Admissions Letter	Student	Dichotomous
Lunch Status (Not free or reduced-price, Free or reduced-price)	Student	Dichotomous
Gender	Student	Dichotomous
Race/Ethnicity (Non-white, White)	Student	Dichotomous
Urbanicity	School/Student	Dichotomous
High School Number	School/Student	Categorical

In addition to the quantitative data collected, I developed and conducted a survey of students who received their Direct Admissions letter. The electronic survey was sent to all students who applied to an Idaho public postsecondary institution prior to the February 15 deadline (see Appendix A). In assessing the influence of the Direct Admissions letter on a student's behavior, I desired to know how much of an influence it had on the first step toward enrolling in an Idaho college -- application. Names of students who did not apply to Idaho colleges or who applied exclusively to out-of-state institutions were removed from the data set and did not receive the survey for this study. The survey sample included only those students who had applied to enroll in a public Idaho postsecondary institution.

Methods – Quantitative

I begin with a summary of observed behaviors. The Idaho State Board of Education collects from the institutions a summary of in-state students who applied to their institution in previous years. Through an analysis of these data and comparison of the 2013, 2014, 2015, and 2016 high school graduating classes, I can determine if there

has been a significant change in the number of students who enrolled at an in-state public institution after receiving a Direct Admissions letter compared to the enrollments in previous three years. Since many of the institutions have participated in a number of strategies to increase enrollment, any significant change cannot be wholly attributable to Direct Admissions. A significant change between the years, however, could suggest that Direct Admissions is correlated with student enrollment behavior.

For the quantitative section of the analysis, I utilize a series of regression models to estimate the impact of Direct Admissions in a student's enrollment in college. The regression models are a series of linear probability models (LPM). The LPM was selected in lieu of probit or logit models because of the ability to estimate group variables by LPM (Caudill, 1988). A group variable is where an entire group exhibits or does not exhibit the behavior in question. If all Group of 8 recipients applied to college, or if all or none of the students exhibiting other characteristics applied to college, the coefficient of that independent variable cannot be estimated through a probit or logit model.

I calculate the percentage of enrolled students on each of the independent variables. This measure becomes the "non-adjusted difference" between the two groups on the independent variable in question. I then run a LPM, including the Direct Admissions letter variable as an interaction variable with the independent variable in question and controlling for other characteristics. The coefficient of this output becomes the "adjusted difference". Comparing the non-adjusted difference and the adjusted difference suggests whether the inclusion of Direct Admissions is positively correlated with enrollment behavior. If the adjusted difference is closer to zero than the non-adjusted difference, the results would suggest Direct Admissions is positively correlated

with enrollment behavior. If the adjusted difference is farther from zero, meaning that the enrollment gap between the two groups had gotten larger, the results would suggest that Direct Admissions is negatively correlated with enrollment behavior.

The series of regressions estimate the non-adjusted and adjusted differences in enrollment behavior of select characteristics of students. The output from these regressions suggest, or do not suggest, that Direct Admissions is positively correlated with college enrollment behavior. The dependent variable is binary. The dependent variable is whether a student has enrolled at one of the Idaho public institutions or not. Enrollment is determined by matching the spring 2016 high school graduating student to the fall 2016 college enrollment records at any of the Idaho public colleges or universities. The independent variables are which letter the student received (Group of 6 or Group of 8), free or reduced-price lunch (as an indicator of poverty), gender, race/ethnicity, urbanicity of the school, and the student's high school.

Linear Probability Model Regression on College Enrollment

The linear probability model employed looks at the variables that influence college enrollment. I include a variable on the Direct Admissions letter type the student received and then a series of controls. With the exception of the high school the student attended, the controls are also used in subsequent models as a moderator for the model.

$$\text{Enrollment} = \alpha + \beta1*(\text{Direct Admissions Letter Type}) + \beta2*(\text{Moderator}) + \beta3*(\text{Direct Admissions})*(\text{Moderator}) + B'(\text{Vector of Controls})$$

The moderators for the model are Free or Reduced-Price Lunch Status (as a proxy for socioeconomic status), Gender, Race/Ethnicity, and Urbanicity. Interaction terms

calculate the impact of a particular moderator with the Direct Admissions letter type (Group of 8 or Group of 6 letter).

In each model, each interactive variable is included as a control, with the exception of urbanicity – for example, in Model 1, Free or Reduced-Price Lunch Status is the moderator, but gender and race/ethnicity are included as control variables. Additionally, fixed effects for high school are included in all models, with the exception of Model 5, as high school is correlated with urbanicity.

College Enrollment is a binary dependent variable based on whether the student who received a Direct Admission letter enrolled in college.

Direct Admissions Letter Type is a dummy variable indicating whether the student received a Group of 6 letter or a Group of 8 letter, meaning how many institutions were identified in the student's letter as already accepting the student.

Lunch Status is a dichotomous variable that indicates the student's federal lunch program participation. Free or reduced-price lunch is often used as a proxy variable reflecting a student's family income (Koffman & Tienda, 2008). This variable was selected in an effort to be conservative in the estimation of free or reduced-price lunch. A student may be eligible for the federal school lunch program as a senior in high school, but may perceive a negative stigma attached to the program and decline participation. For this reason, I chose to calculate this variable by whether a student has ever qualified for the program. A student is categorized as either receiving free or reduced-price lunch or not.

Students who were enrolled at a school that is classified as a Community Eligible Provision[4] (CEP) school are also included. This could lead to potentially overestimating the poverty since schools receiving the Community Eligible Provision provide 100 percent of their students with free school lunch, regardless of individual eligibility. Relying solely on lunch eligibility status, there could be students who might be classified as low socioeconomic status when their participation in the program is more dependent on the school they are attending rather than their economic situation. However, the converse is also true in situations where students who may be eligible for free or reduced-price lunch do not claim those benefits. I assume, for purposes of this study, that those characteristics are equally distributed across high schools.

Gender is also a dummy variable that indicates whether the student is male or female.

Race/Ethnicity is a dummy variable that indicates whether the student is white or non-white. Idaho is a relatively homogenous state with a small percentage of non-white residents. Rather than break each racial or ethnic group into its own category, I chose to have a dichotomous variable indicating whether the student is white or non-white.

High School is a categorical variable that is used to control for factors such as religion and urbanicity. An important factor to note is Idaho has a relatively high population of adherents to the Church of Jesus Christ of Latter-day Saints (LDS). Among

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[4] A Community Eligible Provision (CEP) is granted to schools and school districts in low-income areas. CEP allows the highest poverty schools and districts to serve breakfast and lunch at no cost to all enrolled students without collecting household applications. Instead, schools that adopt CEP are reimbursed using a formula based on the percentage of students categorically eligible for free meals based on their participation in other specific means-tested programs, such as the Supplemental Nutrition Assistance Program (SNAP) and Temporary Assistance for Needy Families (TANF).

the LDS culture, young men at the age of 18 and young women at the age of 19 are strongly encouraged to serve a religious service mission for the church. These missions last for up to two years and are typically fulfilled away from an individual's home. This means that for these LDS men, college enrollment, when it occurs, is usually delayed until at least age 20. For LDS women, college enrollment may be delayed if the young woman intends to serve a religious mission and attend college upon completion of the missionary service. This behavior will influence the results of the analysis since the letter will have appeared to have no effect, but could be a result of the student's religious affiliation and not the failed impact of the Direct Admissions letter. Approximately 25 percent of Idaho self-identifies as a member of the LDS church. This substantial number means that college enrollment could have been affected due to mission behavior.

In addition to the variables seen in the other models, Model 4 and Model 5 contain a variable for urbanicity. The urbanicity of the school is the classification of the school as reported by the Idaho State Department of Education. This dichotomous variable indicates whether the student attended a rural or not-rural high school. This variable is included separately in an effort to break out the influence of urbanicity on enrollment without the influence of religion.

Methods – Survey of Students

I developed a survey to be answered by students who had applied to college after receiving their Direct Admissions letters. The survey was developed within the Idaho State Board of Education and through my role as the Chief Research Officer. The purpose of the survey was to evaluate the influence the Direct Admissions letters had on the behavior of the students.

I emailed the survey in March 2016 to all students who applied to an Idaho public college or university. I sent two follow-up emails as reminders for students to complete the survey. I sent the survey to 8,343 students who had applied to college by the February 15 deadline indicated in the student's Direct Admission letter. I received responses from 1,410 students, for a response rate of 17 percent.

The survey was anonymous, although the student's high school was asked. The surveys were sent electronically to the students directly. This was done to collect a geographically representative sample and not be limited by a school who may have refused to participate.

In an effort to not compromise anonymity of students, defining characteristics such as race or ethnicity were not collected in the survey instrument. While the sample may be geographically representative, it may not be demographically representative. Since the survey was anonymous, there was no ability to connect the survey responses to the student data used in the quantitative analysis.

I asked students to rate on a 1-5 scale the impact the Direct Admissions letter had on the student's behavior in applying for college. I also asked the students to use the same scale to evaluate how much of an impact the Direct Admissions letter had on their behavior of applying to a particular college. After each rating, the students could explain their answers in an open answer text. I coded the open text answers through looking for common themes that emerged among the students that indicated the Direct Admissions letter had a *positive impact, no impact,* or *negative impact*.

The survey was designed to allow students to select answers from a drop-down list and also provide open-text answers. The limited-selection answers could be used for

general scoring. I coded the open-text answers to look for emerging themes. Coding the responses was completed using conventional content analysis (Hsieh & Shannon, 2005). I was able to consider the answers the student provided to both the scale score and the open-text answer. This was not done to try and catch the student providing differing answers, but was done to help better understand the student's behavior. For example, if the student indicated that Direct Admissions had *no impact* on their behavior to attend college and then provided an open-text answer about how the student had always planned on going to college but decided to stay in Idaho for college after receiving the letter, I was able to code that response as the Direct Admissions letter had a *positive impact*. The letter may not have influenced the student's desire to attend college, but the letter appeared to have an impact on the student's behavior to attend an Idaho college.

Coding was done by reading both the scale score the student provided and the open-text response. If either response indicated a *positive impact*, the entire survey response was coded as *positive impact*. The same was done for surveys that were coded as *no impact*, or *negative impact*. The coded impacts were then clustered together and re-evaluated to ensure correct coding (Saldaña, 2013).

Limitations of Study

There are limitations to both this particular study and the replication of this study. One limitation that is present within the study is the quality of the data, both the quantitative data and the survey data. Each student receives a unique student identifier (EDUID). That EDUID is used as the student transitions from high school to college. If the college does not use the same EDUID for that student that the student had in high school, that student will be coded as not enrolling in college. The result of this error

would mean that the number of students identified as enrolling in college would be lower than the actual number. Historical corrections of the enrollment data suggest that this error could impact the go-on rate by up to approximately three percentage points. It is unlikely that false positives would be identified, meaning that a college would incorrectly identify a student as enrolling that was not on campus. It should be noted that while the data are collected in a consistent manner, the process has also improved over time. Therefore, any errors would be consistent with data from prior years, if those errors in data collection have not already been corrected.

Another quantitative limitation is the free or reduced-price lunch data. Students attending a Community Eligible Provision (CEP) school are identified as receiving free or reduced-price lunch. However, since I am using lunch status as a proxy variable for income, students who are above the income threshold for free or reduced-price lunch would be incorrectly identified as *low income* because of the provision the school district was granted. In order to correctly identify students who would otherwise be counted as incorrectly eligible for benefits or even incorrectly not eligible for benefits, I would need access to individual student's, or the student's family's, tax documents. Those data were not available for this study.

The survey used for this study was developed internally at the Idaho State Board of Education. This survey was not designed from extant nationally normed instruments that had gone through exhaustive psychometric testing. This could impact the validity and reliability of the survey instrument itself. This was the first time that the survey had been conducted, so there was no historical data to which I could compare the responses.

There are several characteristics that could limit the applicability or generalizability of this study to other states, other students, and other education systems. Idaho has a unique governing structure that is only shared with Rhode Island, where the State Board of Education governs both the public K-12 and the higher education systems. Idaho was able to implement this initiative, in part due to the unified governance over the educational systems and the access to student data across the different levels of education.

Idaho is a rural state that has a low go-on rate. In a larger state where there are more graduating high school students, a highly selective college, or a very popular college, the availability of a campus to absorb what could be a large influx of students could be prohibitive to other states or education systems from adopting this initiative.

In the next chapter, I discuss the quantitative analysis performed. I present the output from the linear probability model and discuss the findings. I interpret if the findings suggest that Direct Admissions is positively correlated with student enrollment behavior for each of the subgroups identified.

CHAPTER FOUR: QUANTITATIVE RESULTS

Enrollment Trends

This chapter begins with a comparison across time of the graduating high school classes and their enrollment numbers in Idaho public colleges (see Table 4.1). The second year of the academic year indicates the year of a class (e.g., students who were in their last year of high school during 2012-2013 are the class of 2013). The high school graduating class of 2013 saw 45.1 percent of the students enroll in an Idaho public college in the fall semester immediately following high school graduation. That number gradually decreased for the years reported. The high school graduating class of 2016 was the first class that received the Direct Admissions letters. This class saw a go-on rate of 41.8 percent.

Table 4.1 Fall Immediate Enrollment Trends at Idaho Public Colleges, Academic Years of High School Graduates 2012-2013 through 2015-2016

	2012-2013	2013-2014	2014-2015	2015-2016
Total Students	19,236	20,255	19,932	19,353
% Enrolled Total Students	45.1%	43.9%	42.4%	41.8%
Total Not Free Lunch	12,352	13,002	12,987	12,020
% Enrolled Not Free Lunch	50.9%	49.6%	47.7%	48.5%

Total Free or Reduced Lunch	6,884	7,253	6,945	7,333
% Enrolled Free or Reduced Lunch	34.7%	33.6%	32.6%	30.8%
Total Male	9,677	10,267	10,208	10,036
% Enrolled Male	35.8%	36.2%	35.3%	33.8%
Total Female	9,559	9,988	9,724	9,317
% Enrolled Female	54.5%	51.8%	49.9%	50.4%
Total White	15,396	16,001	15,752	15,040
% Enrolled White	46.6%	45.2%	43.4%	42.8%
Total Non-White	3,840	4,254	4,180	4,313
% Enrolled Non-White	39.1%	39.0%	38.8%	38.3%
Total Rural	7,353	7,446	7,285	7,371
% Enrolled Rural	42.7%	41.3%	39.4%	38.1%
Total Not Rural	11,883	12,809	12,647	11,982
% Enrolled Not Rural	46.6%	45.4%	44.2%	44.0%

The overall rates do not show a large increase in go-on rates. In fact, many of the rates decreased from 2014-15. Increases were only seen in the female enrollment and the enrollment of students who were not classified as receiving free or reduced-price lunch. Only the changes for male students and students receiving free or reduced-price lunch

were found to be significant from 2014-15 to 2015-16. Both of those were decreases in 2015-16 and were significant at the $p<0.05$ level (Table 4.2).

Table 4.2 T-test of Significance of Enrollment for Academic Years 2014-15 and 2015-16

Variable (2014-15 data in parentheses)	Mean	Std. Dev.	df	t	p
Total enrollment	(0.424) 0.418	(0.499) 0.500	39,283	1.34	0.18
Free or reduced-price lunch enrollment	(0.326) 0.308	(0.469) 0.462	14,276	2.30	0.02**
Not free or reduced-price lunch enrollment	(0.477) 0.485	(0.004) 0.005	25,005	-1.20	0.23
Male enrollment	(0.353) 0.338	(0.478) 0.473	20,242	2.22	0.03**
Female enrollment	(0.499) 0.504	(0.500) 0.500	19,039	-0.57	0.57
White enrollment	(0.434) 0.428	(0.496) 0.495	30,790	1.12	0.26
Non-white enrollment	(0.388) 0.383	(0.487) 0.486	8,491	0.50	0.62
Rural enrollment	(0.394) 0.381	(0.489) 0.486	14,654	1.58	0.11
Non-rural enrollment	(0.442) 0.440	(0.497) 0.496	24,627	0.28	0.78

*p < 0.1 **p < 0.05 ***p < 0.01

While the historical view of enrollment and the t-test significance provides context to the analysis, the question of if Direct Admissions is correlated with the enrollment behavior of students cannot be answered through Table 4.2. As presented in Chapter 3, this analysis utilizes a linear probability model to estimate the impact of the interaction of the Direct Admissions letters with the different subgroups. Other variables are used as control variables. The analysis is done using only the 2015-16 high school graduating class as this was the first year that the Direct Admissions letters were provided to students.

Variables

The variables in this analysis are presented in Table 4.3. The records of 19,353 students were accessed for this study and, with exception of High School Number, a categorical variable, all the variables are dichotomous. Religious adherence, collected at the county level by the U.S. Religion Census is displayed in Table 3.1, showed the clustering of LDS adherents by county. The high school number variable is used to control for the LDS population (U.S. Religion Census, 2010).

Table 4.3 Summary of Variables, Student Enrollment Fall 2016

Variable	Mean	Std. Dev	Min.	Max.	n
Enrollment (Yes=1, No=0)	0.418	0.493	0	1	19,353
Direct Admissions Letter (Group of 8=1, Group of 6=0)	0.529	0.499	0	1	19,353
Free or Reduced-Price Lunch (Not Free or Reduced=1, Free or Reduced=0)	0.621	0.485	0	1	19,353
Gender (Male=1, Female=0)	0.519	0.500	0	1	19,353
Race/Ethnicity (White=1, Non-White=0)	0.777	0.416	0	1	19,353
Urbanicity (Rural=1, Not Rural=0)	0.381	0.486	0	1	19,353
High School Number	420.450	974.033	7	9,034	19,353

Since I am interested in the correlation of these variables with the Direct Admissions letters, I looked at the differences in enrollment behavior across each of these variables and tested the interaction of the Direct Admissions letters with each variable, while holding other variables constant.

General Statistics of Variables

Prior to running the regression models, I ran a crosstab analysis on the relationship between the Direct Admissions letters and each variable. The first variable

included in the model was free or reduced-price lunch status. Since individual poverty-level information was not available for this analysis, free or reduced-price lunch status was used as a proxy for individuals' poverty-level information. Students who receive free or reduced-price lunch are one category, while the other category contains those students who receive no subsidy on their school lunch. Table 4.4 presents the relationship of each variable with both types of Direct Admissions letters. Since each of the variables are looked at independently, the percentages included in Table 4.4 are looked at independently. For example, 23.8 percent of all students were classified as receiving free or reduced-price lunch and also got a Group of 6 letter. This allows the percentages to be summed across demographics. All the free or reduced-price lunch students accounted for 38.0 percent (adding the Group of 6 and Group of 8 letter columns). The high school variable is not included as it is used as a control variable by each individual high school. Table 4.5 presents the Pearson Chi-Square results for statistically significant relationships.

Table 4.4 Crosstabs of Free or Reduced-Price Lunch and Direct Admissions

	Group of 6 Letter	Group of 8 Letter
Free or Reduced-Price Lunch	4,609 (23.8%)	2,724 (14.2%)
Not Free or Reduced-Price Lunch	4,507 (23.3%)	7,513 (38.8%)
Female	3,662 (18.9%)	5,655 (29.2%)
Male	5,454 (28.2%)	4,582 (23.7%)
Non-white	2,704 (14.0%)	1,609 (8.3%)
White	6,412 (33.1%)	8,628 (44.6%)
Not rural	5,677 (29.3%)	6,305 (32.6%)
Rural	3,439 (17.8%)	3,932 (20.3%)

Table 4.5 Significance Levels of Relationships Between Type of Direct Admissions Letter Received and Student Characteristics

	P Value
Free or Reduced-Price Lunch	0.000***
Gender	0.000***
White	0.000***
Rural	0.128

*p < 0.1 **p < 0.05 ***p < 0.01

The chi-square results indicate that there is a significant difference between the students who receive free or reduced-price lunch and those who do not receive free or reduced-price lunch and the Direct Admissions letter they receive. In the population examined, the students who received free or reduced-price lunch were more likely to have received the Group of 6 Direct Admissions letter than the Group of 8 letter. Students receiving free or reduced-price lunch make up 38.0 percent of the students in this study, as calculated by summing the percentages of the free or reduced-price lunch columns in Table 4.4. This is contrasted with 62.1 percent of the population who does not receive free or reduced-price lunch. Those students who did not receive federal lunch benefits also had a higher percentage who received a Group of 8 letter.

The second variable included in the model is gender. The total count of males and females is very close, with 48.1 percent of the population being female and 51.9 percent being male. The chi-square results indicate that there is a significant difference in the Direct Admissions letters received by males and females. More than half the females received a Group of 8 letter in contrast to the males where more than half of the male population received a Group of 6 letter.

The third variable included in the model is race/ethnicity. Students who self-identify as white are one category, while the other category contains all other students in a non-white category. The crosstabs of race/ethnicity and Direct Admissions letter received are presented in Table 4.4. Non-white students make up approximately 22.3 percent of the total population. There is a significant difference in the percentage of non-white students who received the Group of 8 letter and the percentage of white who

received the Group of 8 letter. The majority of non-white students received a Group of 6 letter whereas the majority of white students received the Group of 8 letter.

The fourth variable included in the model is urbanicity[5]. The Idaho Department of Education categorizes each district as a rural or not rural district. Rural school districts must meet one of two criteria:

1. There are fewer than 20 enrolled students per square mile within the area encompassed by the school district's boundaries; or
2. The county in which a plurality of the school district's market value for assessment purposes is located contains less than 25,000 residents, based on the most recent decennial United States census.

The crosstabs of urbanicity and Direct Admissions letter received indicate that rural students make up approximately 38 percent of the total population. There is little difference in the percentage of rural students who received the Group of 8 letter and the percentage of non-rural students who received the Group of 8 letter. The chi-square results in Table 4.5 also indicate that the difference between these groups is not significant.

The fifth variable is whether the student is a member of the Church of Jesus Christ of Latter-day Saints (LDS). There is strong reason to believe that religion plays a role in a student's decision to go to college immediately after high school graduation, especially in a state where there is a significant LDS population. The dataset does not

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[5] The percentage of rural students in Table 4.4 differs from the results presented in Table 1.4. Table 1.4 was collected from the U.S. Census Bureau whereas the percentages presented in Table 4.4 are based on the Idaho State Department of Education district classification. Table 1.4 used a different data source for comparison to other states and was included only for that purpose. The data analyzed in this study are the data collected from the Idaho State Department of Education as reflected in Table 4.4.

contain the faith of individual students. Due to the lack of individual data, I did not include LDS as an independent variable. However, I controlled for high school attended. While not a perfect solution, controlling for the high school the student attended would allow me to account for factors within a high school, including a high population of LDS students. Therefore, I removed this variable from the independent variables in the model, but I included it in subsequent regressions as a control variable by way of controlling for the high school attended.

The percentages of students who enrolled by each characteristic are presented in Table 4.6. The data identifies a difference of 17.7 percent where students who are not free or reduced-price lunch students enroll in college at higher rates than those who receive free or reduced-price lunch. For the purposes of this analysis, the differences reported in Table 4.6 are termed the "non-adjusted difference," meaning the difference seen in the enrollment trends prior to controlling for other variables or interacting the Direct Admissions variable.

Enrollment by gender is also included in Table 4.6. The data identifies a non-adjusted difference of 16.6 percent where female students enroll in college at higher rates than male students.

Enrollment by race/ethnicity is included in Table 4.6. The data identifies a non-adjusted difference of -4.6 percent where non-white students enroll in college at lower rates than white students.

Enrollment by urbanicity is included in Table 4.6. The data identify a non-adjusted difference of -5.9 percent where students attending high school in a district

identified as rural enroll in college at lower rates than students attending a high school in a district that is categorized as not rural.

Table 4.6 Percentage of Enrolled Students by Characteristic

	Enrolled %	Difference in Enrollment
Free or Reduced-Price Lunch	30.8	
Not Free or Reduced-Price Lunch	48.5	17.7
Female	50.4	
Male	33.8	-16.6
White	42.8	
Non-white	38.3	-4.6
Not rural	44.0	
Rural	38.1	-5.9

Linear Probability Model

This quantitative analysis looks at the correlation between the Direct Admissions letters and a student's college enrollment behavior. By using a linear probability model, I compare the difference in the estimated student enrollment with the estimated enrollment interacted with the Direct Admissions letter variable and controlled for other student characteristics (Hellevik, 2009). If the adjusted difference (including the interaction term) is different than the non-adjusted difference (sans the interaction term), the results would suggest that there is a correlation between Direct Admissions and enrollment, either positive or negative. Since the regression is a linear probability model and not a logit or probit model, the coefficients represent the marginal change holding all other variables

constant. For this reason, only the coefficients are presented in the results as they are synonymous with the marginal effects.

The interaction terms are presented to see if Direct Admissions makes a difference for each of the characteristics. For example, if we find that the adjusted difference is significantly different from the non-adjusted difference when Direct Admissions is interacted with the race/ethnicity variable, it would suggest that the Direct Admissions letters were correlated with a difference in enrollment behavior of the students when considering race/ethnicity. Table 4.7 includes the interaction variables between the Direct Admissions letters and the student characteristics in question. The coefficients of the interaction term are then compared to the differences from Table 4.6 in order to compare the non-adjusted differences (Table 4.6) and the adjusted differences (Table 4.7).

Table 4.7 Regression of Enrollment and Selected Variables with Interaction Variables

Variable	Model 1 (Poverty)	Model 2 (Gender)	Model 3 (Race/ Ethnicity)	Model 4 (Urbanicity – controlling for high school)	Model 5 (Urbanicity 2 – not controlling for high school) †
Direct Admissions (Group of 8)	0.271***	0.332***	0.281***	0.303***	0.330***
	(0.011)	(0.010)	(0.008)	(0.009)	(0.009)
Not Free or Reduced-Price Lunch	0.068***	0.079***	0.080***	0.080***	0.104***
	(0.010)	(0.008)	(0.008)	(0.008)	(0.007)
Not Free or Reduced-Price Lunch * Direct Admissions (Group of 8)	0.025*				
	(0.014)				
Male	-0.119***	-0.074***	-0.119***	-0.119***	-0.119***
	(0.007)	(0.010)	(0.007)	(0.007)	(0.007)
Male * Direct Admissions (Group of 8)		-0.084***			
		(0.013)			
Non-white	0.047***	0.047***	0.034***	0.047***	0.049***
	(0.008)	(0.008)	(0.011)	(0.008)	(0.008)
Non-white * Direct Admissions (Group of 8)			0.030**		
			(0.016)		
Rural				-0.248**	-0.016
				(0.117)	(0.010)
Rural * Direct				-0.043***	-0.071***
				(0.014)	(0.014)

Admissions (Group of 8)					
Intercept	0.411*** (0.022)	0.378*** (0.022)	0.409*** (0.022)	0.395*** (0.022)	0.250*** (0.009)
Observations	19,353	19,353	19,353	19,353	19,353
F-statistic	21.12	21.34	21.12	21.15	549.84
df	217, 19,135	217, 19,135	217, 19,135	217, 19,135	6, 19,346
p	0.000***	0.000***	0.000***	0.000***	0.000***
R^2	0.193	0.195	0.193	0.194	0.146
R^2 adjusted	0.184	0.186	0.184	0.184	0.145

*p < 0.1 **p < 0.05 ***p < 0.01

†High school fixed effects included in all models except for Model 5

Model 1 looked specifically at free or reduced-price lunch status. Table 4.6 indicated that the enrollment non-adjusted difference between the free or reduced-price lunch group and the group that does not receive free or reduced-price lunch is 17.7 percent, meaning that students receiving free or reduced-price lunch enroll in college at lower rates than students who do not receive free or reduced-price lunch. After controlling for gender, race/ethnicity, the high school the student attended, and interacting the Direct Admissions letter with the student's lunch status, the adjusted difference between the free or reduced-price lunch group and the group that does not receive free or reduced-price lunch is 2.5 percent as seen in Table 4.7 for the coefficient of the interaction term. This was significant at the $p<0.1$ level. Prior to including the

Direct Admissions letters, the enrollment differences between these two groups was a 17.7 percent difference. After controlling for the other characteristics and interacting the Direct Admissions letters with the Free or Reduced-Price Lunch variable, the enrollment difference was 2.5 percent. The change in differences for the free or reduced-price lunch group from 17.7 percent to 2.5 percent suggests that there is correlation between the Direct Admissions letters and enrollment of students in these two groups as the enrollment gap decreased with the addition of the Direct Admissions letters.

I controlled only for the high school that the student attended rather than including both the high school and urbanicity. Controlling for high school would not only control for urbanicity, but it would also control for areas where the LDS population is a higher percentage of the overall student population. I controlled for only high school and not the urbanicity variable in all the models except for when the interaction term was urbanicity and the Direct Admissions letters (Model 5).

Model 2 looked specifically at gender. As illustrated in Table 4.6, the non-adjusted difference in enrollment between males and females is -16.6 percent, meaning that females had much higher rates of enrollment compared to males. When controlling for lunch status, race/ethnicity, high school attended, and interacting the Direct Admissions letter with the student's identified gender, Model 2 determines the difference to be -8.4 percent as seen in Table 4.7. This was significant at the $p<0.01$ level. The change in differences when controlling for other characteristics and interacting the Direct Admissions variable suggests a correlation between enrollment and the gender of students when Direct Admissions is introduced to the equation.

Model 3 analyzed the race/ethnicity variable, recorded as a dichotomous variable of white and non-white. The non-adjusted difference in enrollment between white students and non-white students in Table 4.6 is -4.6 percent, meaning non-white students enroll at lower rates than their white counterparts do. However, in controlling for lunch status, gender, high school attended, and interacting the Direct Admissions letter with the race/ethnicity variable, the adjusted difference is 3.0 percent as seen in Table 4.7. In Model 3, the difference switched signs, indicating that after controlling for the various characteristics and interacting the Direct Admissions letters variable, non-white students enroll at higher rates than white students. This result from Model 3 is significant at the $p<0.05$ level.

Model 4 tested the Direct Admissions letters and the interaction with the urbanicity of the student. Table 4.6 indicates that the non-adjusted difference is -5.9 percent, meaning that rural students enroll in college at lower rates than non-rural students. After controlling for lunch status, gender, race/ethnicity, high school attended, and interacting the Direct Admissions letter to the urbanicity variable, the linear probability model reports this difference to be -4.4 percent. I included the high school control variable as it was the only variable to control for the LDS population. However, after running a variance inflation factor (VIF) to check for multicollinearity, the urbanicity variable calculated a VIF of 314.68. If the VIF value for a variable is greater than 10, multicollinearity may be present. I removed the high school control variable from Model 4 and ran the model again, resulting in the output of Model 5.

Again, Table 4.6 indicates that the non-adjusted difference is -5.9 percent. After controlling for lunch status, gender, race/ethnicity, and interacting the Direct Admissions

letter to the urbanicity variable in Model 5, the linear probability model reported this difference to be -7.1 percent. These results are significant at the $p<0.01$ level. These results suggest that after controlling for the student characteristics and interacting Direct Admissions with urbanicity, the gap actually increased 1.2 percent. These results suggest a negative correlation between Direct Admissions and rural student enrollment exists.

I calculated the VIF for Model 5 and the results showed all values below the 10 threshold. This suggests that by removing the high school number variable, the multicollinearity problems were also removed. Therefore, the results from Model 5 should be used instead of the results from Model 4.

In the next chapter, I discuss the results from the survey conducted with students who applied to college after receiving their Direct Admissions letter. I present the analysis of the responses and what those responses indicate about the influence Direct Admissions had on the students' behavior.

CHAPTER FIVE: SURVEY RESULTS

Results

After the February deadline for students to submit their applications to the colleges to which the students were interested, The Idaho State Board of Education conducted a survey of the students who had applied to college. I conducted this survey under my role as the Chief Research Officer with the Idaho State Board of Education. Students were told that the survey was voluntary and their participation in the survey had no impact on the student's acceptance or consideration for scholarships from the colleges to which they had applied. The survey was sent electronically directly to the students via the email the student provided as part of the college application process. Two reminder emails were also sent from me, in my capacity as the Chief Research Officer. I received 1,410 responses to the 8,343 solicitations sent; a response rate of 17 percent.

The students were informed that the survey responses would remain anonymous. Since the data were collected from application information, the survey was designed to ask about the student's application behavior, rather than enrollment behavior. This was intentional as the students had not yet enrolled at the time the survey was distributed, nor could the student responses be linked to enrollment records later in the year when the students would be attending college. Students were therefore asked about those factors influencing their application behavior and the level of impact the Direct Admissions letters had on that behavior.

More than half of the students who responded to my survey indicated that the Direct Admissions letter had no or a low impact on their decision to apply for college. Just 30 percent of students reported that in the first year of the Direct Admissions program, the program had a "medium" or "high" impact on their decision to apply to college (see Table 5.1).

Table 5.1 How Much of an Impact Did Your Direct Admissions Letter Have in Your Deciding to Attend College After High School?

Impact	No Impact	Low Impact	Low-Medium Impact	Medium Impact	Medium-High Impact	High Impact
n	468	216	102	179	88	73
%	42%	19%	9%	16%	8%	6%

I also asked the students if the Direct Admissions letter had an impact on where they chose to apply for college. Of the total, 72 percent of students indicated that the letter had "no impact" or "low impact" on the decision of where they applied to school (see Table 5.2). Conversely, more than 25 percent of students indicated that the letter had a "medium" or "high" impact on the college to which they applied.

Table 5.2 How Much of an Impact Did Your Direct Admissions Letter Have in Your Deciding to Apply to a Particular College?

Impact	No Impact	Low Impact	Low-Medium Impact	Medium Impact	Medium-High Impact	High Impact
n	505	204	99	180	63	72
%	45%	18%	9%	16%	6%	6%

I asked students to rank what the top factors were in their decision to choose a college. Few students said that the schools included on their Direct Admission letter was the most important factor. The possible drop-down answers were:

1. This college is close to my home
2. This college was included in my Direct Admissions letter
3. Cost of attending this college
4. Scholarship or other financial aid from this college
5. I already earned college credits at this college
6. This college offers the degree program or courses I want
7. I thought this college offered the best return on my investment

Four percent of students said that the most important factor in their decision was the inclusion of the school in their Direct Admissions letter. In fact, the Direct Admissions option was the lowest factor of all the given reasons (see Table 5.3). While it may be easy to discount the Direct Admissions letters since they were the lowest ranked factor, four percent of the participants to the survey indicated that the Direct Admissions letters were the top reason they applied to a particular institution.

Table 5.3 Most Important Factors for Selecting a Particular College

Reason	n	%
This college offers the degree program or courses I want	360	36%
Cost of attending this college	215	22%
This college is close to my home	137	14%
I thought this college offered the best return on my investment	110	11%
Scholarship or other financial aid from this college	92	9%
I already earned college credits at this college through Dual Credit, AP, or early college courses	45	5%
This college was included in my Direct Admissions letter	35	4%

I also asked students to expound on their ranking of the impact that Direct Admissions had on both the decision to attend school and the particular school the student chose. Not all of the students provided reasons for their answer on whether Direct Admissions played a role in the student's decision to attend college or their decision to apply to a particular college. Of the 1,126 students who responded to this question, 591 (52%) provided additional information. Three themes emerged from my analysis of these data:

1. Direct Admissions made no impact as the student was already planning to attend college or had other plans (military, religious mission, or not attending);
2. Direct Admissions provided a positive influence on the student's behavior. For example, these students may have been interested in attending an out-of-state or

private institution, but Direct Admissions influenced the student to consider and/or apply to an in-state public institution. The student may have intended to attend college, but felt anxious about applying and the Direct Admissions letter reassured them and made the process less daunting. The student may have not previously considered going to college or the student thought they were not "college material" prior to receiving the Direct Admissions letter; or

3. Direct Admissions was a negative experience because the student did not get into the institution the student had desired to attend.

The responses were coded using a conventional content analysis method (Hsieh, & Shannon, 2005). Table 5.4 shows how many student responses fell into each category and what percentage of the total responses is for each group. The largest group claimed that Direct Admissions had no impact on their decision to attend college. Still, more than one quarter of the students claimed that Direct Admissions helped them in their decision to apply to college.

Table 5.4 Survey Responses on Level of Impact of Direct Admissions

Response	Impact	n	%
Already planned to attend, Direct Admissions did not help	None	423	72%
Negative impact	Negative	2	2%
Direct Admissions encouraged the student to apply	Positive	159	27%

Students Who Indicated "No Impact" from Direct Admissions

Many of the students in this group indicated that they had already applied by the time their Direct Admissions letter arrived including the student who said, *"I had already applied to Boise State and University of Idaho when I received my letter."* Many other students simply stated that they had always planned on attending college and so this letter really made no difference in their plans. A typical response came from the student who said: *"College had already been a plan, regardless of acceptance to Idaho schools."* This group of students had already applied or were planning to apply to the colleges they desired to attend prior to receiving the Direct Admissions letter. Reflecting back on the groups which were targeted by the Direct Admissions initiative, the students who had not planned on going on to college or the bottom-ability quartile as described in Bishop (1977), were the students of interest in influencing behavior. The group that was going to go to college regardless of Direct Admissions was never intended to be the target audience of this initiative. This group was already making plans to attend a postsecondary institution and would be hardly influenced by an initiative that nudged them toward the plans they had already made and prepared for.

Students Who Indicated "Negative Impact" from Direct Admissions

This group, only accounting for two percent of survey respondents, reported that Direct Admissions was a negative experience. These students suggested that they had earned a higher level of admissions than their letter reflected. As one student said, *"I thought I had the GPA to get into Idaho State University, but only got on the Idaho State University of technology. I am still very upset."* While the major factor in determining which Direct Admissions letter a student received was the student's grade point average,

the student also needed to have at least one year of coursework completed in an Idaho public high school. If a student had a 4.0 GPA but had not completed a full year of coursework at an Idaho public high school, the student would have received a Group of 6 letter. This may have been the case for this student.

The letter also alerted the student that they still may be eligible to enroll in the other institutions and that they could contact the institutions in which they were interested to determine what more they could do to improve their chances of acceptance. The data suggest that some of the students viewed the Direct Admissions letter as a form of rejection letter if they did not receive the letter of 8. As one student said, *"I had already planned on attending college but this letter just seems to bring you down when you aren't accepted to the schools you wanted to go to. Not truly fond of it."*

Students Who Indicated "Positive Impact" from Direct Admissions

Survey data suggested that the largest impact Direct Admissions had was not encouraging those who had not considered college to go on; but encouraging students who were already considering college elsewhere to stay in the state. One student in this group offered this observation: *"I had originally planned on an out-of-state school, but the ease of just going right into an in-state school convinced me to stay."* Survey respondents reported that the message that they had already earned their seat at multiple colleges encouraged them to stay in Idaho.

For some students, Direct Admissions offered peace of mind. Some students were already planning on attending postsecondary, but expressed concern or anxiety about college. A typical response came from one student who said: *"The application process*

can be scary for teens, and rejection is not easy. So it was nice to get a letter of pre-approved [sic] acceptance for some colleges.

Other participants indicated that they had not planned on attending college prior to receiving their Direct Admissions letters or they reported the letters changed their mind. Direct Admissions was designed to encourage these students who had not planned for or thought about attending college to take advantage of the reduced barriers to entry to college made possible through Direct Admissions. Some of the students in this group indicated that they did not think they had what it takes to attend college or that colleges would not want them. One student said, *"I didn't think any college would accept me, but I was wrong."* The Group of 6 letter included those institutions that have a community college role, meaning that the institutions are open access or open enrollment institutions. For the open access institutions in Idaho, there is no minimum academic standard the student needs to meet in order to attend. Therefore, the Direct Admissions letters simply alerted students that they were already qualified to attend these institutions. The admissions criteria had not changed, but the message the students received through the Direct Admissions letters was one of encouragement, including for this student who said, *"I knew I wanted to go to college, but I wasn't sure how I felt about it. Once I got the letter my whole mindset changed. I knew I could do it."*

This group that indicated Direct Admissions made a positive impact on their behavior to apply accounted for 27 percent of the participants. Whether Direct Admissions encouraged the students to apply to a public institution within Idaho or the letters relieved their concerns or anxiety surrounding postsecondary education, this group reported that they benefited from Direct Admissions.

Impact and Additional Factors

Since parental education is a factor on the college behavior of students, I analyzed the level of impact that the Direct Admissions letters had on the students by parental education level (Pascarella et al., 2004; Terenzini et al., 1996). I classified the impact as none, negative, or positive. Table 5.5 looks at the impact of Direct Admissions by parental education. Nearly 80 percent of students whose parents earned at least a baccalaureate degree indicated that the Direct Admissions letters had no impact on their decision to attend college. However, as the parental education level decreased, the student-reported impact of the Direct Admissions letters increased. For students whose parental education was less than a high school diploma, the percentage of students who indicated that the Direct Admissions letters had a positive impact on their decision to attend college was 45 percent.

Table 5.5 Direct Admissions Impact by Parental Education Level

	Level – I Don't Know	Level – Less Than High School	Level – High School Diploma or GED	Level – Certificate or Trade Program	Level – 2-Year Degree	Level – 4-Year Degree or Higher	n
No Impact	10	15	69	21	53	255	423
Negative impact	0	2	4	1	1	1	9
Positive Impact	8	14	38	12	20	67	159
n	18	31	111	34	74	323	591

Table 5.5 indicates 79 percent of students whose parents earned a 4-year degree or higher stated Direct Admissions had no impact. Table 5.5 also indicates that 42 percent of those students who indicated Direct Admissions had a positive impact had parents who earned a 4-year degree or higher. The level of impact the Direct Admissions letters had on the student's application behavior decreased comparatively as the level of parental education increased. Approximately 33 percent of participants who indicated a positive impact of Direct Admissions also indicated that their parents had a high school diploma or less, excluding the students who did not know what level of education their parents had earned. Of those students who reported that Direct Admissions had no impact, only 20 percent of them had parents whose education level was a high school diploma or less. This finding shows that students who are more likely to be influenced by the Direct Admissions letters have parents with a lower level of education attainment.

A Pearson's chi-square test was calculated on the Direct Admissions impact by parental education level. The relation between these variables was significant X^2 (10, N = 591) = 32.78, p <0.001. This result indicates there is a significant difference in the impact of Direct Admissions by the parental education level.

When Direct Admissions was crafted, the decision was to try and engage parents in the process because of the correlation between parental involvement and college enrollment behavior (Perna & Titus, 2005; Rowan-Kenyon, Bell, & Perna, 2008). For this reason, letters were sent to both students and parents. In the survey, students were asked to describe if they had talked with their parents about college and Direct Admissions. They were also asked if they had talked with their high school counselor or teacher about Direct Admissions. While the literature suggested that parental

involvement was correlated with college enrollment behavior, understanding the role and utilization of the counselors could influence the implications for practice. The results are presented in Tables 5.6 and 5.7.

Table 5.6 Survey Responses on Communication with Parents

Impact	Did Not Speak with Parents	Did Speak with Parents	n
No Impact	101	322	423
Negative Impact	2	7	9
Positive Impact	19	140	159
n	122	469	591

The percentage of participants who spoke to their parents about Direct Admissions was significant by impact, X^2 (2, N = 591) = 10.05, p <0.001. This finding shows that there was a significant difference in the communication with parents and the level of impact students reported the Direct Admissions letter had on their application behavior.

Table 5.7 Survey Responses on Communication with Counselor or Teacher

Impact	Did Not Speak with Counselor or Teacher	Did Speak with Counselor or Teacher	n
No Impact	326	97	423
Negative Impact	6	3	9
Positive Impact	97	62	159
n	429	162	591

The percentage of participants who spoke to their counselor or teacher about Direct Admissions was significant by impact, X^2 (2, N = 591) = 15.15, p <0.001. This finding also shows that there was a significant difference in the communication with a counselor or teacher and the level of impact of the Direct Admissions letters.

The responses suggest that most students (80.0 percent) spoke with their parents about the letters. Those students who said there was no impact, indicated that they had already decided to go to college. However, for the populations that indicated the Direct Admissions letters had a positive impact in their decision to apply to college, there is roughly a 50 percentage point difference in the proportion of students who spoke to their parents about Direct Admissions and those students who indicated they spoke with their high school counselor or teacher.

In the next chapter, I offer an analysis of both quantitative and qualitative data using the behavioral economics framework. I present areas for future research on both

Direct Admissions and the usefulness of behavioral economics as a theory in public administration.

CHAPTER SIX: DISCUSSION

Discussion

This study looked at the Direct Admissions initiative and whether it was correlated with enrollment behavior of students in different subgroups. The subgroups selected are documented to possess characteristics that result in significantly different college enrollment behaviors. The subgroups analyzed in this study were free or reduced-price lunch (as a proxy variable for socioeconomic status), gender, race and ethnicity, and urbanicity. A survey was also employed to look at the influence of the Direct Admissions letters as it relates to the parent education level of students and the parent or counselor involvement.

This analysis suggests that Direct Admissions is correlated with enrollment behavior, but that the enrollment behavior varies by subgroup. Enrollment behavior among subgroups changed after implementation of Direct Admissions. The quantitative analysis showed that Idaho's Direct Admissions initiative correlated positively with student enrollment, directly from high school, into college for all groups except rural students. The non-adjusted difference and adjusted differences determined from quantitative analyses are presented in Table 6.1 for each subgroups.

Table 6.1 Correlation of Direct Admissions Letter and Student Characteristics

Control	Groups	Difference and adjusted difference in enrollment behavior
Free or Reduced-Price Lunch	Free or reduced-price lunch eligible vs. not free or reduced-price lunch eligible	17.7% non-adjusted difference 2.5% adjusted difference
Gender	Female vs. male	-16.6% non-adjusted difference -8.4% adjusted difference
Race/ethnicity	Non-white vs. white	-4.6% non-adjusted difference 3.0% adjusted difference
Urbanicity	Not rural vs. rural	-5.9% non-adjusted difference -7.1% adjusted difference

Likewise, the qualitative analysis suggests that the Direct Admissions initiative had differential influences on subgroups. Table 6.2 identifies these differential effects by parent education level, parent involvement, and teacher/counselor involvement on those students who stated that Direct Admissions had a positive impact on their college enrollment behavior.

Table 6.2 Student Self-Reported Positive Impact of Direct Admissions on Application Behavior by Subgroup

		Positive Impact
Parent education level	I Don't Know	45%
	Less Than High School	45%
	High School Diploma or GED	34%
	Certificate or Trade Program	35%
	2-Year Degree	27%
	4-Year Degree or Higher	21%
Parent involvement	Yes	89%
	No	11%
Teacher/counselor involvement	Yes	39%
	No	61%

According to Richard Thaler (2015), "if you want to encourage someone to do something, make it easy" (p. 337). Direct Admissions was designed to be easy. Students did not even need to express an interest in attending college before they learned that a seat was reserved for them. Students learned that they had been given a seat at no fewer than six colleges or universities. For students who responded to the Direct Admissions letters by applying to and enrolling in college, Prospect Theory and the Endowment Effect help explain their behavior.

Implications for Practice

Direct Admissions was more influential for the students when the parents were involved as opposed to the counselors. This finding is not meant to claim that the counselors are ineffective or doing a poor job. The survey did not ask why students did or did not talk to their counselor. The finding does show that students that applied to college were more likely to have discussed that action with their parents. Changes to the initiative

that would enhance the parental involvement may improve college application numbers and should be considered.

The findings suggest that Direct Admissions is positively correlated with college enrollment behavior of non-white students. Idaho's non-white population is growing. Policies that increase the college attendance of underrepresented students will be critical for the Idaho State Board of Education to achieve its goal of increasing the educational attainment of all citizens.

The behavior of rural students is both an area for future research and has implications for policy makers and practitioners. Direct Admissions attempted to get more rural students to enroll in college. The findings suggest that this initiative may not be successful in encouraging rural students to go on to college. Either developing another initiative specifically for rural students or modifying Direct Admissions may be required if rural students are a priority for policymakers.

Direct Admissions and Behavioral Economics

Students in the survey responses expressed how many of them had changed their behavior because of the letters. Some of these students chose to stay in Idaho while other students indicated that they decided to attend college elsewhere. The students mentioned that staying in Idaho was easier or that they believed they had accomplished something. These students also expressed a sense of pride and accomplishment in receiving these letters. This sense of ownership and pride of something of value are similar to the feelings expressed by student participants in the coffee mug experiment conducted by Thaler (2015).

In Thaler's coffee mug experiment, some students were given coffee mugs while others were not. The students were then allowed to sell the coffee mugs for however much other students were willing to pay. Thaler found that students who were given a coffee mug valued that coffee mug more than the students who were not awarded a mug. The amount students were willing to pay for the coffee mug was generally lower than the amount the other students were willing to sell their coffee mug. Thaler deemed this observation the "Endowment Effect." Once an object is owned, there is pride and ownership on the part of that individual. Whatever that item is, becomes more valuable to the individual who owns it. The Endowment Effect helps to frame the understanding of why a student who originally felt that an out-of-state or private college was a better choice, would change their behavior and attend an Idaho public college.

Direct Admissions letters informed students that they had been accepted to at least six institutions. For these students, they now owned a seat at a college of their choice. Out-of-state or private institutions who were competing for those students were now competing against a higher value object. In these situations, some students indicated that while they had initially considered attending college out-of-state or at a private institution, the Direct Admissions letters changed their behavior. The Idaho institutions to which the students had been accepted became more valuable to the recipients of those letters by the nature of the students having already been accepted. In this way, the Direct Admissions letter was like the coffee mug. Once the student was given their letter, competing colleges had to offer even more value since the student's willingness to sell their Idaho acceptance would have higher than a competing institution's willingness to pay.

Since students who are classified as first-generation students, meaning that neither parent had completed a bachelor's degree, are less likely to enroll in college it was hoped that first-generation students would respond positively to the Direct Admissions letters. Students whose parents had a lower educational attainment expressed that the letters had a greater and more positive impact in their college application behavior. These findings would suggest that Direct Admissions does have a greater impact on those students who would be the first in their family to graduate from college. This finding can be understood by considering Prospect Theory and the Endowment Effect. In Prospect Theory, the relative starting point is key to whether the person will view a situation as a gain or a loss. Prospect Theory would hypothesize that a student who would be the first in their family to go to college would view a college acceptance letter as a gain, whereas a student who was already planning on attending college may not view the letter as a gain. For that student who sees the letter as a gain, the Endowment Effect helps us understand that a relative gain is valued greatly once received. This means that a student who would is generally less likely to attend college would not only see a greater gain from the letter, but the relative value of that letter would be greater than a student who had already planned on attending college. Since first-generation students are less likely to enroll in college, they would value the letter more than students whose parents earned a college degree.

One of the students who said Direct Admissions was a negative experience indicated that they believed they had a sufficient GPA to get into the desired school. When that school was not included in the student's Direct Admissions letter, the student felt let down and upset. Prospect Theory explains that the reference point of a situation is

vital in how an individual will react. Kahneman and Tversky (1979) illustrated that finding by finding that individuals will choose different behaviors in a loss situation than a gain situation, even if the end result is potentially the same. Prospect Theory explains that the difference in the behavior of these individuals is the reference point from which the individuals see themselves. The individual who has to choose between losing $500 as a sure thing or the bet, perceives the losing $500 as a loss despite the outcome being the same as the individual who is making choices between a $500 gain or that individual's bet. The difference in behavior is based on the reference point of the individual.

Kahneman (2013) explained, "for financial outcomes, the usual reference point is the status quo, but it can also be the outcome that you expect, or perhaps the outcome to which you feel entitled" (p. 282). In the case of Direct Admissions, the reference point the students are using is where they think they should be. The student's reaction may not be a result of the actual reference point, but a perceived one. Since this may have been the first acceptance letter the student received, the student may have believed they were at a higher reference point (meaning a greater likelihood of being accepted) than they actually were. The actual reference point has not changed, but the student felt upset because they believed they should have been accepted, but were not. Someone who thinks they deserve a Group of 8 letter or had high enough grades and test scores to be accepted at any of those colleges will see a Group of 6 letter as a loss, even if the student was never qualified for a Group of 8 college to begin with. This connection between Direct Admissions and Prospect Theory is reinforced in another statement from a student who saw Direct Admissions as a negative when that student responded by saying that

while the student had planned on college, they were "down" when the letter did not include the schools the student desired to attend.

Prospect Theory also helps explain why students who had the ability to attend an out-of-state or private institution would forego that option and stay in Idaho. This "nudge" toward college enrollment is satisfied through the Direct Admissions letter by informing students that they are already accepted to at least six Idaho public colleges or universities. Again, reflecting on Kahneman's and Tversky's (1979) scenario where the student can choose the additional $500 sure thing or risk a gamble that could result in the individual receiving no additional money, individuals were risk averse in their behavior and chose the sure thing. Students were given a "sure thing" option of attending an Idaho public institution or a gamble where the student could apply to an out-of-state or private institution and hope she was accepted. Many of the survey participants who indicated that Direct Admissions had a moderate impact were the students who expressed risk averse behavior by changing their intention of attending an out-of-state or private institution to attending an Idaho public institution. Why would students suddenly change their plans? Prospect Theory helps to explain why students who was sure they wanted to attend a college other than an Idaho public institution would change their minds. The Direct Admissions letter provides the student assurance that they will be accepted at an Idaho college to which they apply. This guarantee means that the risk to the student in applying and not being accepted is eliminated. Prospect Theory informs us that individuals are risk averse when looking at a benefit or improvement in their current state. Eliminating the risk results in a reduced transaction cost for the student in applying. This is true even in a situation where an individual may ultimately choose a less valuable option. Kahneman

(2013) stated, “in fact a risk-averse decision maker will choose a sure thing that is less than expected value, in effect paying a premium to avoid the uncertainty” (p. 273). These students who had not planned on attending an Idaho public college changed their minds because the certainty of acceptance was of greater value than the perceived value of a different college, even if the student valued the out-of-state or private institution higher than the Idaho public college.

Behavioral economics provided a solid framework to understand the behavior of the different subgroups. Direct Admissions, however, was negatively correlated with the enrollment behavior of rural students. Rural students have been identified as a subgroup that enrolls in college at lower rates than non-rural students. While Direct Admissions is positively correlated with college enrollment behavior for subgroups of gender, race/ethnicity, and socioeconomic status, the differences between rural and non-rural students appear to be fundamentally different. Behavioral economics may still provide a framework for understanding rural student behavior, but the findings suggest that the difference between the two groups is more nuanced than just a rural or non-rural classification.

Behavioral Economics as a Public Administration Theory

Behavioral economics provides a theoretical framework that allows for analysis of public administrative actions. This is especially true in situations where policies are intended to incentivize people toward certain behaviors. Richard Thaler (2015) questioned, “Are there ways to make it easier for people to make what they will deem to be good decisions, both before and after the fact, without explicitly forcing anyone to do anything?” (p. 324). Clearly there are many policies designed to encourage certain

behaviors of citizens. What Thaler describes is not only a framework that can be used to evaluate public policy, but a framework that can be used in the development of public policy.

Thaler (2015) also stated, “Designing good public policies has a lot in common with designing any consumer product” (p. 327). By designing policies with the consumer in mind, public administrators can be more successful in their efforts. A question that public administrators who use behavioral economics as a framework to design policy will need to answer is, “who is the consumer?” The consumer may be the public or the employees of the agency. Whoever that consumer may be, Thaler encourages public administrators to keep those consumers in mind. Public administrators can encourage behaviors that are in alignment with the goals and values of the agency or the public administrator by simplifying the decision process. The goals or values of the agency or administrator may be internally focused or global in their scope. Regardless of the scope of the goal or value, if the desired outcome is a particular behavior, there is an opportunity for more research to be done on the application of behavioral economics as a viable framework in public administration. This study offers an example of the role behavioral economics, specifically Prospect Theory and the Endowment Effect, may play in designing and delivering public policies and programs.

Areas of Future Research

This study looked at how behavioral economics could be applied to education policy. Additional applications in public administration should be tested through the lens of behavioral economics in order to validate its usefulness in this field. As previously noted, the merging of these two disciplines is a recent practice. Additional research could

identify other areas such as healthcare policy, economic policy, or even corrections policy where behavioral economics may be applicable.

This study was a first look at the Direct Admissions initiative. There is still much to be learned. This study was correlational. Future research could again look at Direct Admissions, but with an eye toward causality. Now that the correlational links have been formed, a more sophisticated model such as hierarchical linear modeling or a regression discontinuity design could be employed to investigate a question of whether the implementation of Direct Admissions resulted in higher go-on rates or whether a Group of 8 letter motivates students differently than a Group of 6 letter.

A longitudinal study of these students as they progress through the educational system could explore whether the long-term goals of the initiative are being met. While the Board had a goal to increase the enrollment at Idaho's public colleges and universities, the Board ultimately would like those students to graduate. A longitudinal analysis could investigate the outcomes of students who received a Group of 6 letter compared to the Group of 8 letter students. Are Group of 6 letter students retained at similar rates? Are Group of 6 letter students less likely to complete a degree on time? The answers to these questions could be very important as policymakers consider the long-term viability of this initiative.

Behavioral economics does not currently help with understanding why the enrollment behavior of rural students would be negatively correlated with Direct Admissions. Future research could provide a better understanding the issues around rural students. Behavioral economics may still be an appropriate framework for a study of rural

students, but the underlying causes of why the rural characteristic differs from other student characteristics which impact college enrollment

As other states model their own guaranteed admissions policies after the Direct Admissions initiative, a comparative analysis of these programs and meta-analyses of similar correlational or causal studies could be conducted. This could result in an emergence of best practices for these types of initiatives.

Conclusion

Idaho's Direct Admissions initiative shows potential. For all subgroups, with the exception of rural students, Direct Admissions was positively correlated with student application and enrollment behavior. The enrollment of non-white students was particularly interesting as the inclusion of Direct Admissions and controlling characteristics resulted in non-white students more likely to enroll than white students, opposite of what was previously seen.

Behavioral economics was a valuable framework through which to explain the behavior of students applying to or enrolling in college. The usefulness of this framework is not limited to just the education arena. This analysis demonstrates that public administrators can use a framework of behavioral economics when designing or evaluating policies where a specific action is desired. More research can be done on Direct Admissions to target rural students or to evaluate the causal link between Direct Admissions and college application and enrollment behavior. In addition to the specific analysis on a college enrollment program, this analysis adds to the overall body of research on public policy and demonstrates the usefulness of behavioral economics in the field of public administration.

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APPENDIX A

Additional Information

Table A.1 Survey Instrument

Number	Question	Purpose
1	Were you attending an Idaho public high school or charter school in October 2015?	Validate that the student would have received a Direct Admissions letter
2	From which high school are you preparing to graduate?	Validate that the student would have received a Direct Admissions letter
3	Did you receive a Direct Admissions letter last year?	Validate that the student would have received a Direct Admissions letter
4	Please select the colleges that you were accepted to in your Direct Admissions letter.	Distinguish between Group of 8 and Group of 6 since the survey is anonymous
5	Did you or your parents receive a Direct Admissions letter in a language other than English?	Determine penetration of non-English letters
6	Did you discuss the Direct Admissions letter with your parents or guardians?	Determine involvement of parents in college process
7	What types of things about college did you discuss with your parents or guardians?	Whether the purpose of the letter was understood and how parents were engaged
8	Did you discuss the Direct Admissions letter with a teacher or counselor at school?	Determine involvement of teachers and counselors in college process
9	What types of things about college did you discuss with your teacher or counselor at school?	Whether the purpose of the letter was understood and how teachers or counselors were engaged
10	Before you received your Direct Admissions letter, had you seriously considered attending college?	Did the Direct Admissions letter change a student's thoughts about college
11	How much of an impact did your Direct Admissions letter have in your deciding to attend college after high school?	Did the Direct Admissions letter change a student's thoughts about college
12	How much of an impact did your Direct Admissions letter have in your deciding to apply to a particular college?	Did the Direct Admissions letter change a student's thoughts about college
13	Which college do you plan on attending?	Are we encouraging students to attend college in general or specifically Idaho institutions

14	Were there other Idaho colleges or universities that you would have liked to attend, but were not included in your Direct Admissions list?	Are we encouraging students to attend college in general or specifically Idaho institutions
15	What were important factors in deciding to attend college?	What motivates students to attend
16	Please rank the following in order of importance for picking the college you did	What motivates students to attend
17	Please list any other important factors that you considered before selecting the college you applied to.	What motivates students to attend
18	Did you consider any out-of-state or private colleges BEFORE you received your Direct Admissions letter?	Did the Direct Admissions letter change a student's thoughts about college
19	Did you APPLY to any out-of-state or private colleges before you received your Direct Admissions letter?	Did the Direct Admissions letter change a student's thoughts about college
20	Please list the colleges or universities to which you applied.	Validate previous questions
21	Did you consider any out-of-state or private colleges AFTER you received your Direct Admissions letter?	Did the Direct Admissions letter change a student's thoughts about college
22	Did you APPLY to any out-of-state or private colleges after you received your Direct Admissions letter?	Did the Direct Admissions letter change a student's thoughts about college
23	Please list the colleges or universities to which you applied.	Validate previous questions
24	Did you take any Dual Credit or AP courses in high school?	Did the Direct Admissions letter change a student's thoughts about college
25	What dual credit or AP courses did you take?	Validate previous question
26	Why did you choose to not take Dual Credit or AP courses in high school?	Did the Direct Admissions letter change a student's thoughts about college
27	Do you have an older brother or sister who continued their education beyond high school?	Is Direct Admissions reaching new students
28	Did your older brother or sister earn a college certificate or degree?	Is Direct Admissions reaching new students
29	What is the highest level of education any of your parents or guardians have completed?	Is Direct Admissions reaching new students

30	Would you be willing to talk with us further about your decision to attend college?	Potential follow up

Table A.2 Go-On Percentages and Other State Characteristics

State	Go-On Percentage	Percent in Poverty	Percent Male	Percent White	Percent Hispanic	Percent Urban	Percent LDS
Average of States	62.2	9.5	49.3	78.2	10.1	73.6	3.5
Idaho	45.1	9.7	50.1	92.2	10.6	70.6	26.1
Alaska	46.4	6.6	51.9	67.2	5.6	66.0	4.5
Delaware	47.3	7.4	48.5	71.1	7.6	83.3	0.5
Oregon	47.8	9.6	49.5	85.6	11.2	81.0	3.9
Washington	48.3	8.2	49.8	79.2	10.5	84.1	4.0
Nevada	51.8	8.6	50.6	73.6	25.6	94.2	6.5
Utah	53.3	7.7	50.2	89.4	12.3	90.6	69.1
Vermont	53.5	7.1	49.3	95.6	1.5	38.9	0.7

Texas	56.2	13.0	49.6	72.0	36.7	84.7	1.2
Maine	56.2	8.4	48.9	95.6	1.3	38.7	0.8
Arizona	57.9	10.9	49.8	78.2	29.0	89.8	6.1
Illinois	58.7	9.2	49.0	71.7	15.2	88.5	0.4
West Virginia	59.2	12.8	49.1	94.2	1.1	48.7	0.9
Wisconsin	60.1	7.7	49.6	87.2	5.5	70.2	0.4
Oklahoma	60.2	11.9	49.4	74.0	8.2	66.2	1.1
Wyoming	60.4	6.2	50.9	91.3	8.4	64.8	11.1
Montana	60.5	9.7	50.1	89.8	2.8	55.9	4.7
Pennsylvania	60.9	8.5	48.7	82.9	5.2	78.7	0.4

Colorado	61.2	8.6	50.1	83.5	20.1	86.2	2.8
Missouri	61.4	10.0	48.9	83.4	3.4	70.4	1.1
Ohio	61.5	10.3	48.8	83.4	2.9	77.9	0.5
California	61.7	10.2	49.7	61.1	36.7	95.0	2.1
Michigan	61.9	10.6	49.1	79.3	4.3	74.6	0.4
Tennessee	62.1	12.4	48.8	78.8	4.2	66.4	0.7
Kentucky	62.9	13.5	49.1	88.5	2.7	58.4	0.7
Florida	63.1	9.9	48.9	76.3	21.6	91.2	0.7
Alabama	63.2	13.0	48.5	69.9	3.4	59.0	0.7
Hawaii	63.6	6.7	50.1	25.0	8.7	91.9	5.1

Virginia	63.8	7.2	49.1	69.9	7.3	75.5	1.1
North Carolina	64.1	11.4	48.7	69.6	7.8	66.1	0.8
Maryland	64.1	5.7	48.3	59.6	7.5	87.2	0.7
New Hampshire	64.3	5.1	49.4	94.5	2.7	60.3	0.6
Louisiana	64.7	13.8	48.9	63.6	3.9	73.2	0.6
Kansas	64.7	8.4	49.5	85.1	9.8	74.2	1.2
Arkansas	65.4	13.5	49.0	78.5	5.9	56.2	0.9
Rhode Island	65.4	8.4	48.3	82.0	11.8	90.7	0.4
Indiana	65.8	9.6	49.2	85.1	5.6	72.4	0.6
Iowa	66.6	7.4	49.4	91.9	4.5	64.0	0.8

North Dakota	67.4	7.2	50.5	90.5	2.0	59.9	1.0
Georgia	67.7	11.9	48.9	61.1	8.3	75.1	0.8
South Carolina	68.3	12.3	48.7	67.3	4.6	66.3	0.8
New Jersey	68.6	6.7	48.7	69.6	16.8	94.7	0.4
New York	68.9	10.8	48.4	66.4	17.1	87.9	0.4
Nebraska	69.5	7.9	49.5	88.3	8.4	73.1	1.3
Minnesota	70.9	6.8	49.6	86.6	4.5	73.3	0.6
South Dakota	71.8	8.7	50.1	86.6	2.6	56.7	1.2
New Mexico	72.4	13.9	49.3	71.2	45.4	77.4	3.3
Massachusetts	73.2	7.5	48.4	81.7	9.0	92.0	0.4

Connecticut	78.7	6.5	48.6	78.9	12.6	88.0	0.4
Mississippi	78.8	16.7	48.5	59.9	2.4	49.4	0.7