EFFECTS OF THE UO DIVERSITY-BUILDING SCHOLARSHIP ON STUDENT RETENTION, GRADUATION, AND GRADUATION DEBT

by

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This dissertation examines the effects of the UO Diversity-Building Scholarship (DBS) on the student outcomes of retention, graduation, and debt load upon graduation. Student outcomes were interpreted in the context of three research questions focusing on: (a) how DBS recipients compared with other funding groups; (b) how student outcomes differed by ethnoracial group; and (c) how outcomes differed by students' level of financial need. DBS recipients were compared with Staton and Dean's scholarship recipients and unfunded students. Study predictors were funding status, ethnoracial background, and financial need. Variables controlled for in study models were gender, parents' educational background, and standardized test scores. The effects of the DBS were analyzed using both descriptive and inferential (logistic and linear regression) analyses. Regression analyses yielded mixed results with regards to differential outcomes by funding group, ethnoracial background, and financial need. After

discussing results in detail, I offer several policy and research recommendations in reaction to negative or unfavorable outcomes among DBS recipients. These recommendations focus on increased data gathering for UO scholarship recipients and formal evaluations of the impact of student support efforts directed at Diversity-Building scholars in particular and scholarship recipients in general.

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CHAPTER I

INTRODUCTION

For almost four decades researchers have sought to explain the primary factors behind student success in college. Early work in this area adopted a socio-statistical approach which focused on access, factors in student success and failure, and institutional engagement (e.g., Tinto, 1972; 1973). With the advent and growth of the modern federal financial aid system in the mid-1960s, the academic community began to focus on the effects of financial aid policies on student access to higher education throughout the decade.

Federal and state financial aid programs matured in the 1980s and 1990s, closely monitored by researchers interested in emerging trends. Much of the academic literature expressed concern over the growth of loan programs in the context of higher college costs and shrinking grant programs, whereas other observers concentrated on the politics and practicalities of need-based versus merit student aid. In many of these studies, college enrollment was the most significant variable of interest.

While of general interest for over two decades, only recently have observers begun to pay special attention to the relationships between aid programs and more specific student outcomes. The effects of financial aid policy on student retention have garnered a great deal of attention. To a lesser degree, academics have also begun to focus on what might be considered the ultimate student outcome: graduation. These studies

examine retention and graduation outcomes from a macro-level perspective, with findings based on national or state-wide datasets.

Literature Background

The financial aid literature features two broad and overlapping themes: (a) aid type, and (b) the effects of aid on student outcomes. The types of aid most commonly discussed in the literature are grants and loans. Most researchers define grants as federal or state awards (e.g., Pell and Supplemental Educational Opportunity Grants) for students with demonstrated financial need, though others include institutional scholarships in this aid type. Loan types include those subsidized by federal or state agencies (e.g., Stafford loans), unsubsidized loans from the government or other lenders who specialize in student financial aid (e.g., federal parent loans), and private loans from third-party lenders.

The debate over need-based versus merit aid figures prominently in the aid-type literature. As its name suggests, students receive need-based aid on the basis of their financial need, usually assessed by means of the Free Application for Federal Student Aid (FAFSA). Merit aid tends to come in the form of institutional awards to students who have achieved at a high academic level in high school, or who possess a particularly desirable quality valued by that institution. At the institutional level, financial aid packages may contain both merit and need-based components. For example, the University of Oregon's Diversity-Building Scholarship (DBS) may be defined as a merit scholarship with consideration given to the student's demonstrated financial need and experiential background.

Studies of the effects of aid on student outcomes generally focus on college enrollment (also referred to as "access"), retention, and, to a much lesser extent, graduation and loan policy. Research on college enrollment established the bases for later studies on aid effects. The retention literature touches on all forms of student aid, though authors in this area of research approach retention from different perspectives. Finally, graduation and loan studies are relative latecomers to the financial aid literature and their initial findings are sometimes equivocal.

Enrollment Studies. Enrollment studies may be considered the core of financial aid literature. Although this dissertation concentrates on the student outcomes of retention, graduation, and debt load, the enrollment literature is highly relevant because it introduced much of the theoretical framework used in other forms of financial aid research. Works in this area established methods for studying various forms of financial aid, recognized differential effects of these aid types, and championed the study of differential effects of aid policy on students according to student and institutional characteristics.

Enrollment studies generally discuss the effects of financial aid policy on college access. In the 1970s, researchers concentrated on how tuition pricing influenced students' decisions to attend college. These and later studies found that tuition increases were negatively associated with enrollment (Jackson & Weathersby, 1970; Kane, 1995; Leslie & Brinkman, 1988; McPerson, 1978). Changes in the amounts of federal and state grants were determined to have measurable and significant effects on freshman enrollment (Blakemore, 1985; Moore, Studenmund, & Slobko, 1991).

Another group of enrollment studies has concentrated on the uneven effects of financial aid policies on students. This research has established that low-income and minority students (particularly African Americans) are the most "sensitive" to increases in tuition and award packaging, whereas the results for Hispanic students in many of these studies are inconclusive (Heller, 1996, 2000b; Jackson, 1989; McPherson & Schapiro, 1991; Shires, 1995). As important as this line of research is to the overall topic of financial aid effects, it should be noted that some of these studies seem to have been hampered by small sample sizes for different minority groups.

Enrollment researchers have also found differing funding effects according to college sector. Surveying the first decade of the federal Basic Educational Opportunity Grant (BEOG), Manski (1983) determined that BEOGs had a strong positive impact on enrollment at community colleges and vocational schools, but was not associated with four-year enrollment. In the early 1990s, enrollment researchers reacted to the wave of tuition increases that swept higher education, finding that higher tuition encouraged minority students to attend two-year schools instead of four-year institutions (Behrman, Kletzer, McPherson, & Schapiro, 1992).

Need-based vs. Merit Aid. Research on merit and need-based aid is divided between discussions about the perceived policy shift from need-based to merit funding and the different effects of these aid types on recipients. Most observers agree that since the early 1990s there has been a steady increase in merit aid offered at the institutional level, accompanied by a relative decline in federal and state need-based aid programs. By the late 1980s, researchers noted that, although most financial aid was still need-

based, merit awards based on grade-point average (GPA) were becoming an important recruitment tool for prospective students "on the margin" (Baum & Schwartz, 1988). Just a few years later, the rapid growth of merit aid programs compared to need-based aid led to predictions that need-based grants were in serious decline at the nation's most selective institutions and in danger of disappearing altogether (Ehrenberg & Murphy, 1993).

There is considerable disagreement, however, over the effects of this trend. Few deny that merit programs have steadily gained in popularity in the past decade and a half, yet colleges and universities appear to have reacted by increasing need-based aid to counter rising tuition costs. The amount of need-based aid more than doubled in the first half of the 1990s (Heller, 2000a). Other observers note that both need-based and merit aid grew in the 1990s, suggesting that, even if this type of assistance grew at a faster rate than need-based aid, this phenomenon did not constitute an alarming divestment in need-based programs (Longanecker, 2002).

Some are not entirely satisfied with this situation and warn that the growth in both forms of aid may hide political and institutional agendas that do not necessarily serve the interests of financially strapped students. Merit programs, they argue, are politically popular because they reflect meritocratic ideals and tend to favor the most financially advantaged students. Furthermore, these same students were the primary beneficiaries of growth in need-based aid in the second half of the 1990s, "indicating that institutions probably used increasingly liberal definitions of financial need" (Heller, 2004).

The second area of discussion regarding need-based and merit aid centers on their uneven effects on students. As opposed to the research on shifts in aid policy, there appears to be much more consensus over who benefits from merit aid. Researchers agree that merit aid tends to have a disproportionately positive effect on higher-income and White students, with the general conclusion being that those students who receive merit aid also tend to come from the most advantaged socio-economic backgrounds (Binder & Ganderton, 2004; Dynarski, 2002; Heller, 2004; Singell, 2004; Singell & Stone, 2002).

Opinions about the effects of need-based aid vary. Early studies of the effects of the BEOG found that these awards had no measurable effect on low-income students (Hansen, 1983; Jackson, 1988). Other studies, however, suggested that these grants had either positive effects (Leslie & Brinkman, 1988; Schwartz, 1986), or they helped higher-income students more than lower-income (Kane, 1996). These studies' contradictory findings may be attributed to researchers' definitions of high- versus low-income status and possibly non-representative study samples.

Student Debt. The growth of loan programs and student debt load is perhaps the most controversial area of financial aid policy in recent years. One study found that the number of student loans and total loan volume more than doubled between 1990 and 2000 (American Council on Education, 2001). This dramatic increase has been attributed to the 1992 reauthorization of the Higher Education Act, which raised loan limits, created new loans, and relaxed eligibility for existing loan programs. The growth in student loan activity at the national level is matched in the state of Oregon, which saw a 107% increase in loan volume from 1993 to 2004. According to a recent study, the average

Oregon undergraduate debt is $19,000 (Swarthout, 2006)—over three times the average tuition and fees for a single year at the University of Oregon (University of Oregon, 2008a; amount is based on three 14-credit terms totaling $6,012 for the 2007-08 academic year). Nationally, two-thirds of students borrow to meet the costs of their undergraduate education, with thirty-two percent graduating with unmanageable debt (King & Bannon, 2002; the authors define unmanageable debt as loan payments representing at least 8% of a college graduate's monthly income). Researchers who consider student debt an especially serious problem argue that those most likely to graduate with debt are those who are often least able to assume the financial burden: first-generation college students, low-income students, and minorities (Clinedinst, Cunningham, & Merisotis, 2003; King & Bannon, 2002; Millett, 2003; Wolanin, 2001).

The steep increase in loan numbers and total volume has been characterized as a failure in financial aid policy at least as damaging as the slow eclipse of need-based aid. Some observers argue that the growth of loan programs—and the subsequent rise in student debt—is rooted in the perennial friction between those who value higher education as a social benefit and others more inclined to regard it as a private good (Nora, 2001). This argument is supported by recent surveys on higher education. Survey results suggest that Americans increasingly see college costs as a private, rather than public, responsibility (Selingo, 2003). Other researchers complain that the expansion of loan programs is not based on clear policy objectives or empirical data (Campaigne & Hossler, 1998). The simultaneous growth of loan programs and weakening of federal and state

grants has been called the most likely culprit behind the widening college-access gap between African American and White students (St. John, Paulsen, & Carter, 2005).

As with research on need-based and merit aid, the college debt discussion is not completely unanimous. Several researchers have concluded that increases in loan amounts do not negatively affect enrollment (Schwartz, 1985; Moore, Studenmund, & Slobko, 1991), or that negative effects were limited to middle-class students (St. John, 1990). In spite of its finding that low-income students borrowed and owed the most for college, the American Council on Education (2001) downplayed the issue, concluding that most students maintain "manageable amounts" of debt. Other findings suggest that student debt is a fairly innocuous issue. One study (Choy, 2000) argues that students who graduated in 1993 did not assume excessive amounts of debt and that, by 1997, almost two-thirds were debt free (46% had never borrowed and 16% had paid off their loans). How one interprets such findings may be a matter of perspective, however. Looked at another way, Choy's findings show that over half of students (54%) *did* take out loans to complete college, and that almost 40% of college students were still in debt four years after graduation.

The issue of debt load after graduation is clearly important to the study of student outcomes. Whether one agrees that student debt is a pervasive problem or not, any effort to reduce student debt must be regarded as a sound decision from political and student-service perspectives. Research has shown that financial aid policies can have a direct effect on student borrowing behavior (e.g., King & Bannon, 2002). This dissertation will

attempt to shed light on the relationship between the Diversity-Building Scholarship and the borrowing habits of its recipients.

Retention Studies. Retention studies focus on the student background characteristics, institutional characteristics, and financial aid policies that may influence a student's continued enrollment in college. Researchers are inconsistent in their definitions and treatment of this student outcome; some studies concentrate on the negative outcome of dropping out, whereas others focus their attention on persistence. A commonly used term is "attrition," or the "first departure spell from the four-year institution in which students originally matriculated" (Ishitani, 2006, p. 867). Closely related to this is "stopout," or the student's "first occurrence of noncontinuous enrollment" (DesJardines, Ahlburg, & McCall, 2002, p. 657). Another term used for retention is "re-enrollment," which regards a student's return for a second year as a conscious decision to re-enroll (Singell, 2004). In the parlance of university administrators, this term may be confused with the formal re-enrollment of a student who has previous disenrolled (formally or informally, voluntarily or involuntarily).

This dissertation will refer to a student's continued voluntary enrollment at any evaluation point prior to graduation as "retention." The literature uses various time-points to measure student retention. Second-year retention is by far the most common measurement point, though researchers have established that within-year retention is also a useful predictor of persistence to graduation (St. John & Hu, 2001). This study will measure retention at two points: (a) spring enrollment of first year; and (b) second fall (or second-year) enrollment.

A small but important sub-set of retention studies identifies student attitude as a possible predictor of student retention. Researchers have theorized that *perceptions* of college affordability might be used to predict both campus social integration and retention (Cabrera, Nora, & Castañeda, 1992). Expectations about the value of the college investment have also been linked to retention. One study (Leppel, 2005) found that most college drop-outs are voluntary and not due to academic or financial crises. Findings suggest that those students who place the most value on immediate financial returns from college may be more likely to drop out because they discount the long-term benefits of investing in higher education. One study found that non-financial aid variables, such as educational aspirations, may be stronger predictors of retention than such variables as net tuition or debt load (Wetzel, 1999). Other research, however, does not discount the power of financial incentives on student outcomes. The early promise of college funding has been found to have a strong effect on Indiana students' educational aspirations, which in turn increased their college retention rates (St. John, 2004).

These studies provide compelling arguments that intangible variables such as student aspirations and personal motivation may be hidden predictors of retention. This dissertation will not have at its disposal qualitative or quantitative measurements of student motivation or aspirations. It may be necessary to consider this lack of data during the explanation of my empirical results.

The retention literature has identified the links between financial aid and the likelihood of retention. With some exceptions, research has found that the more financial aid a student receives, the more likely a student is to continue enrollment—

though this relationship is almost certainly confounded by the issue of who tends to receive student aid. The effects of financial aid on retention may also be related to aid type and how long the funding lasted.

Ishitani and DesJardines (2002) found that financial aid in general had a large, positive effect on retention. Their results indicate that low-income students were the most likely to drop out, and that the "income effect" on retention increased in the second and third years of college. Studies of income and race effects found that both need-based and merit aid significantly increased the likelihood of student retention, but that merit aid had disproportionately positive effects on higher-income or White students (Binder & Ganderton, 2004; Herzog, 2008; Heller, 2004; Singell, 2004). Other researchers have found that receiving federal grant aid is not related to college retention, but that scholarships had a positive effect (DesJardines, Ahlburg, & McCall, 2002).

The retention literature has found a generally negative relationship between educational loans (debt load) and continued enrollment in college. According to the Education Resources Institute and the Institute for Higher Education (1995), survey results from the mid-1990s indicated that 20% of students would consider leaving college if their debt load increased. Other research argues that those who borrowed the most to pay for college were also the most likely to drop out, especially in their second year (Clinedinst, Cunningham, & Merisotis, 2003; Hochstein & Butler, 1983; Ishitani, 2006), though the likelihood of continuing enrollment increased significantly if the student successfully replaced loans with scholarships (DesJardines, Ahlburg, & McCall, 2002).

Graduation Literature. Studies exploring the links between financial aid policy and college graduation are a relatively recent development in the financial aid literature. Graduation researchers appear to have benefited from techniques and theories established in the enrollment and retention literature to explore the influences of different types of student aid on graduation rates. This small body of research also examines how financial aid influences the likelihood of graduation among students from different income and ethnoracial backgrounds. The graduation literature tends to use four years as the "gold standard" for timely graduation from college, though many researchers and higher-education administrators are also interested in graduation figures for years five and six.

There are relatively few comprehensive studies on grant and merit aid as a factor of college graduation. A possible reason for this—and for the relative paucity of graduation studies compared to other types of analyses—is because retention is often used as a proxy for graduation. Put simply, it is easier to measure student retention over the course of one or two years than it is to follow a student sample through graduation at the four- to six-year mark. The few studies in this area suggest that recipients of institutional grants were more likely than non-recipients to graduate or still be enrolled in college at the six-year mark (Horn & Peter, 2003); minority students (particularly African Americans) are more likely than Whites to graduate when provided institutional grants (St. John, Paulsen, & Carter, 2005); and that higher education's increased dependence on merit aid has had a negative effect on the neediest students (Singell, 2004).

Researchers are divided over how financial aid may influence the likelihood of college graduation. Debt load is an important consideration in the graduation literature.

Most studies have found a negative relationship between graduation and undergraduate debt load (Ishitani, 2006; Knight & Arnold, 2000; Perna, 1997; Singell, 2004). On the other hand, at least one study has found no relationship between undergraduate borrowing habits and persistence to graduation (Lam, 1999), and even if borrowing hurts four-year graduation rates, the "loan effect" may disappear in years five and six (Ishitani, 2006). The discrepancy among these findings highlights the need for institutional case-studies on this subject.

Some researchers have begun to look into how debt load affects application and enrollment in graduate schools. Studies in this area have arrived at different conclusions. Choy (2000) downplays the possible negative effects of undergraduate debt and his findings suggest that debt load after graduation plays no role in whether students apply to and enroll in graduate programs. Using the same dataset as Choy, Millet (2003) concludes that "undergraduate debt was a significant factor of applying to graduate or first professional school" (p. 406).

The lack of unanimity in the graduation literature is important to this dissertation. One of the primary goals of the DBS is to not only attract students to the University of Oregon, but also to enhance academic outcomes. The effects of the DBS on retention and debt load will be important considerations in this evaluation, but understanding recipient graduation rates and likelihood of graduation is perhaps the most vital part of this analysis. Ultimately, as important as retention and debt load are to students, they mean little if an institution fails to investigate how well a scholarship program moves students through to graduation.

CHAPTER II

RESEARCH QUESTIONS AND OUTCOME VARIABLES

This dissertation addresses three primary research questions:

Research Question 1

Was the Diversity-Building Scholarship (DBS) more positively associated with retention, graduation, and debt-load outcomes than other institutional funding statuses?

The effects of the DBS are measured according to three outcome variables: (a) retention; (b) graduation; and (c) debt upon graduation. *Retention* is measured by spring (i.e., still enrolled spring term of freshman year) and fall (i.e., still enrolled fall term of second year) enrollment. The next student outcome considered is *graduation.* This study examines two elements of the graduation outcome: *likelihood of graduation*, and *terms to graduation.* The third outcome analyzed is total *graduation debt.*

The Diversity-Building Scholarship's possible effects on the above-mentioned outcomes are compared to three other funding statuses: (a) the Staton Scholarship; (b) the Dean's Scholarship; and (c) Unfunded. Like the DBS, the Staton and Dean's are scholarships open to first-year students (see pp. 17-19, *Scholarship Descriptions*). Students coded as "Unfunded" are freshmen who did not receive any type of merit or need-based assistance.

Research Question 2

Was a DBS recipient's ethnoracial background a significant predictor of retention, graduation, and debt-load outcomes? Did certain minority DBS recipients post enhanced

outcomes compared with White students when all other available variables are held constant?

Research Question 3

Holding all other variables constant, was a DBS recipient's level of financial need a significant predictor of retention, graduation, and debt-load outcomes?

CHAPTER III

METHODS

Study Setting and Sample

The University of Oregon is located in Eugene, Oregon. Eugene is located at the southern end of the Willamette Valley and is a generally middle-class college city with a population of 146,000. With approximately 210,000 residents, the Eugene-Springfield area is the second largest metropolitan community in the state (U.S. Census Bureau, 2008).

The University of Oregon is a mid-sized, comprehensive research institution. Since 2001, the number of students attending the University has remained relatively stable at about 21,000. Each year the University enrolls slightly more than 3,000 first-time freshmen. The UO is considered Oregon's flagship institution, with 30% of its student population enrolling from outside the state and 5.4% enrolled as international students. About 52% of UO undergraduates are female, and almost 15% identify as racial or ethnic minorities (University of Oregon, 2008b).

The sample consisted of nine first-time freshman cohorts enrolling at the UO between fall 1998 and fall 2006. I concentrated on first-time freshmen because of the enrollment stability of this population compared to transfer and continuing students. Concentrating on first-time freshmen allowed for a longer observation period which provided more reliable data on retention, terms to graduation, and debt load.

The total student sample size was 17,426. The sample consisted of 340 DBS recipients who entered the UO as first-time freshmen between 1998 and 2006. The primary comparison groups consisted of all Staton, Dean's, and unfunded students who were first-time freshmen and who also submitted the FAFSA. First-time freshman who enrolled between 1998 and 2006 and who received other types of scholarships not comparable to the DBS, Staton, and Dean's in selection criteria, award amounts, and renewal terms were omitted from the study sample.

Scholarship Descriptions

Diversity-Building Scholarship. The DBS is a competitive, renewable scholarship offered to first-time freshmen, transfer applicants, continuing undergraduates, and UO graduate and law students. Diversity-Building Scholarships are awarded in the form of "tuition remissions," or discounts on tuition, and are renewable for up to sixteen terms. Successful applicants currently receive half- or full-tuition awards ($3,000 or $5,000), depending on the strength of their applications. This dissertation focuses on 340 students who received the DBS between 1998 and 2006.

The DBS Selection Committee consists of approximately 20-30 members; all members are university administrators, faculty, or enrolled students (usually current recipients). Scholarship readers award points to freshman applicants in five evaluative areas: (a) high-school GPA; (b) extracurricular, leadership, and personal activities and/or achievements; (c) essay; (d) letter of recommendation; and (e) general "diversity plan" points. This final criterion evaluates the extent to which the applicant reflects scholarship

and institutional enrollment goals based on such variables as residency status, need level, family academic history, and ethnoracial background.

There are several technical requirements for DBS consideration. To be eligible for freshman consideration, all applicants must be regularly admitted to the UO, meaning they must meet or exceed minimum requirements for admission and be fully admitted with no academic deficiencies or special consideration. The minimum high-school GPA for eligibility among first-time freshman applicants is 3.0. All applicants must submit the FAFSA in order to establish need level. FAFSA submission also ensures that all applicants are U.S. citizens or permanent legal residents. The scholarship is open to both Oregon residents and non-residents, though residents are given priority in the review process. The DBS selection committee gives special consideration to applicants' experiential background, academic and/or professional accomplishments, and ethnoracial background.

DBS recipients who enroll at the UO are required to maintain a minimum 2.5 GPA to maintain the scholarship. Scholarship length depends on the number of credits the student has completed at the time of the award; freshman recipients receive funding for up to 16 terms. One of the scholarship-maintenance requirements is that recipients be actively involved in some type of community service activity, usually focusing on a social justice activity to which the student is dedicated. Freshman recipients attend a leadership retreat and are required to meet with advisors in the university's Office of Multicultural Academic Support (OMAS). Diversity-Building Scholars are unique in

that they are the only UO scholarship recipients who receive compulsory academic counseling and are required to complete and document community service.

Staton Scholarship. The Staton Scholarship is a $5,000 tuition-remission scholarship renewable for up to four years. Eligibility for the Staton requires that the student: (a) be an incoming freshman; (b) be an Oregon resident; (c) have a high level of financial need; and (d) preferably declare a major in the Humanities, Education, Music, or Fine Arts. Like the DBS, the Staton selection process considers a student's academic performance, professional objectives, and family educational history. In order to assess financial need, the Office of Student Financial Aid and Scholarships requires that all Staton applicants submit the FAFSA. Staton recipients were the smallest sub-sample in the study, with 120 students awarded the scholarship between 1998 and 2006.

Dean's Scholarship. The Dean's Scholarship is the University of Oregon's primary merit-based scholarship. Because eligibility and selection criteria are based on academic performance, students do not need to submit a separate scholarship application for Dean's consideration. Dean's scholarships range from $500 to $6,000 per year and are renewable for up to twelve terms. To be eligible a student must: (a) be a first-time incoming freshman; (b) post a minimum high-school grade-point average of 3.6; and (c) meet standard freshman admission requirements. Selection criteria are based on high-school GPA, standardized test scores, and strength of high-school curriculum. In 2006 the UO added a new component whereby lower-income students would receive a small need-based grant attached to the Dean's award. As with the DBS and Staton scholarships, the Dean's Scholarship requires that students be enrolled full-time and

maintain satisfactory academic progress to ensure renewal. At 6,721 students, Dean's recipients represent the largest funding group analyzed in this study.

Procedure

The University of Oregon stores all enrollment and financial information on Banner, the university's administrative data management system. All data used for this study were retrieved from Banner by the UO's Office of Student Financial Aid and Scholarships (OSFAS). OSFAS is also charged with the storage and maintenance of the federal financial aid data used in this dissertation.

The primary challenge with regards to FAFSA data involves OSFAS's maintenance of federal financial aid information. Because OSFAS's first responsibility is the disbursement of federal funds, and not the long-term storage of FAFSA information, this analysis was dependent upon OSFAS's ability to "reconstruct" student aid profiles between 1998 and 2002. Student financial aid data are archived in various Banner modules for disbursement purposes. Each module contains important financial aid information and none contains a student's entire aid profile, thus information from multiple Banner modules had to be identified and combined to reconstruct the profile. OSFAS management and data professionals informed me that the existence of disaggregated student aid profiles were related to the length of time since disbursement (i.e., the older the student record, the more effort necessary to reconstruct the profile).

Statistical Analysis

Before addressing my research questions, I will provide a comprehensive descriptive overview of the student sample by presenting tables of means, standard

deviations, and correlations. The statistical analysis consisted of five regression analyses, one for each outcome variable: (a) spring retention; (b) fall retention; (c) graduation (whether a student graduated or not); (d) terms to graduation; and (e) debt load upon graduation. All descriptive and empirical tests were performed using SPSS version 12.0 (SPSS, 2003).

Research Variables

Variables used in this dissertation are divided into three groups: outcomes, predictors, and control variables. Retention outcomes are dichotomous variables measuring *spring* and *fall retention.* Previous retention literature has established the usefulness of measuring within-year retention (St. John & Hu, 2001). Since the University of Oregon's academic year is based on quarters and not semesters, I have chosen to measure within-year retention at the spring (or third) term, rather than winter (or second) term. Using spring term would allow for more time to measure predictors' effects on retention while still focusing on students' first enrollment year. Graduation outcomes measure *whether a student graduated* (dichotomous) and *how many terms the student took to graduate* (continuous). The final student outcome is a continuous variable measuring student *graduation debt* from the University of Oregon. The eight predictor variables consist of *funding status* (DBS, Staton, Dean's, or Unfunded; categorical), *ethnoracial background* (White, Asian/Pacific-Islander, Hispanic, and African American; binary), and *Expected Family Contribution* (*EFC*; categorical by quartiles). Control variables measure basic student background or academic characteristics. These include

gender (binary), *parents' education level* (continuous), and combined SAT score (continuous).

Table 1. *Variable Names and Their Role in the Analysis.*

	Variable Type		
Variable Name	Control	Predictor	Outcome
Gender	X		
Parents' education	X		
SAT	X		
Funding status		X	
Ethnoracial background		X	
EFC (financial need)		X	
Spring retention			X
Fall retention			X
Graduation			X
Terms to graduation			X
Debt upon graduation			X

Relevance and Goals of Present Study

The research discussed in the literature synthesis identifies and explains the effects of financial aid policy on student outcomes from a macro-level perspective. Almost all of these studies make use of large-scale, regional or national datasets in the hopes of increasing the generalizability of their results. As we have seen, however, many of these studies' findings are either equivocal or at odds with one another.

No doubt some of these contradictions are due to methodological differences which hamper comparability. For example, some researchers used student data derived from multi-state or system-wide programs (which still does not guarantee comparability across institutions), whereas others relied on data compiled from unrelated programs

and/or institutions. Another factor may be the goals of the researchers, many of whom were evaluating regional or state-level programs (e.g., Battagliani, 2004; Dynarski, 2002; St. John, 2004; Wolanin, 2001). Even when these studies' findings do not contradict one another, the effects of financial aid policy across large student samples or numerous colleges may not accurately reflect the actual situation at individual institutions.

Institutional studies are a small segment of the financial aid literature (e.g., Binder & Ganderton, 2004; Singell, 2004). One way in which this study will contribute to the broader corpus of financial aid studies is rooted, ironically, in its relatively narrow focus. The sometimes extreme variability among higher-educational institutions—especially among public colleges and universities—presents a serious challenge to the macro-level policy analyst. Used correctly, studies such as this may allow policy-makers at the institutional and state level to make more focused decisions based on empirical analyses which address the needs of individual universities and their students.

This dissertation will also attempt to address what I consider a serious institutional shortcoming in the University of Oregon's administration of the Diversity-Building Scholarship. The DBS is regarded as one of the university's premier scholarships in terms of award amount, and institutional and state-wide recognition. Its concentration on students from culturally and experientially underrepresented backgrounds makes it a highly visible and politically sensitive funding source. In spite of this scholarship's high profile, to my knowledge there have been no comprehensive evaluations of its effectiveness since its inception in 1997. By not performing regular, empirically-based evaluations, the University of Oregon has failed to test long-standing

assumptions about the scholarship. From a resource management perspective, university leadership must know if the DBS is an effective resource that helps students and the institution achieve their respective goals.

Anticipated Results

In Research Question 1 I ask whether DBS recipients exhibited enhanced student retention, graduation, or debt-load outcomes when compared to students with different funding statuses. I predict this analysis will show that, in spite of the scholarship's high profile and the high level of institutional support the DBS enjoys, the scholarship is not generally associated with enhanced student outcomes when compared with the Staton and Dean's scholarships. Such a finding should not be considered an indictment of the scholarship program, however. If results suggest that DBS recipients are comparable to other scholarship recipients, then the study will have shown that the DBS functions at least as well as comparable scholarships. This would be especially significant considering that academic requirements for DBS consideration are more modest than those of other scholarships. If the analysis suggests that DBS recipients fared *worse* than other scholarship recipients, then the results may point to deficiencies within the program or selection process that may warrant administrative attention. Of course, it is entirely possible that the results will suggest that DBS recipients posted *better* student outcomes than other scholarship recipients. Such results would imply a special characteristic of the DBS (i.e., a "DBS effect"), its recipients, or both, in relation to other scholarship programs.

In Research Question 1 I also ask if DBS recipients enjoyed enhanced outcomes when compared with unfunded students. I believe this analysis will show that DBS recipients outperform their unfunded peers in some, if not all, of the outcome variables for which statistically significant results can be found. If research suggests that scholarship programs improve retention, graduation, and debt-load outcomes, then it seems reasonable to expect that DBS recipients will post more positive results than unfunded students. Results suggesting no retention, graduation, or debt-load benefits associated with the DBS as compared to unfunded students could potentially call the program's effectiveness into doubt.

Research Question 2 seeks to determine if race is a significant predictor of retention, graduation, and debt outcomes. Differing results among ethnoracial groups may point to important group-based student, institutional, or scholarship effects that contribute to unequal outcomes. Researchers disagree on the effect of financial aid on students based on ethnoracial background. Some studies (Heller, 1996, 2000b; Jackson, 1989; McPherson & Schapiro, 1991; Shires, 1995) suggest that minorities are the most "sensitive" to financial aid, with effects for African Americans being the most significant. Other studies (Binder & Ganderton, 2004; Dynarski, 2002; Heller, 2004; Singell, 2004; Singell & Stone, 2002) argue that scholarships have a disproportionately positive effect on White students, with mixed or equivocal results for minority students. This disagreement in the literature makes it difficult to predict DBS effects when adjusting for ethnoracial background.

In Research Question 3 I ask if financial need is a significant predictor of retention, graduation, and debt outcomes among DBS recipients. Financial aid researchers disagree on which students benefit most from financial assistance. As with Research Question 2, it is difficult to offer an unequivocal prediction about the value of EFC as predictor of DBS recipient success. Some researchers have found that financial assistance has had the most positive effects on low-income students, whereas others argue that wealthier students gain the most from aid. In spite of this, I offer four predictions of EFC's relationship to the student outcomes studied here. First, I anticipate that EFC will have no measurable effect on spring retention, but will have a positive effect on fall retention outcomes for DBS recipients. (The rationale for this prediction is that spring retention is measured at such an early stage in a student's career that financial resources have yet to become a significant retention factor for most first-year students, particularly those with DBS funding. In contrast, I believe that second fall retention will be positively associated with EFC because of the significant summer milestone, a time when many students and parents assess their investment in college.) Second, EFC will be positively related to DBS recipients' likelihood of graduation; the higher students' EFC, the more likely they will be to have graduated. Third, EFC will be negatively associated with the number of terms necessary for DBS recipients to graduate; the higher students' EFC, the less time it will have taken them to graduate. Lastly, I anticipate that EFC will be negatively associated with graduation debt; the higher students' EFC, the less they will owe at graduation.

Study Implications

This dissertation is intended to serve as a program analysis of a specific scholarship as administered by a single university. By evaluating the effects and effectiveness of the DBS, I hope to test many of the findings in the literature on financial aid policy. More importantly, this dissertation will be what is believed to be the first empirical analysis of this high-profile scholarship. There are numerous institution-level opinions regarding the perceived success of the UO DBS and its effects on recipients. Most UO administrators, recipients, and stakeholders speak positively about the scholarship program, but without empirical analysis it is impossible to be certain of the scholarship's true effectiveness.

The Diversity-Building Scholarship was created to enhance the diversity of the University's learning environment while also increasing higher education opportunities for traditionally underrepresented students. There can be little question that such efforts, if successful, benefit both the institution and the students whom they are intended to serve. The importance of these efforts demands that programs like the DBS be regularly evaluated in order to maximize positive effects.

This dissertation seeks to identify and explain the effects the DBS has on student outcomes as measured by retention (spring and fall), time to graduation, and debt load at graduation. By examining these relationships through empirical analyses, I attempt to extend institutional knowledge about the scholarship's effectiveness and its role in the University of Oregon's student support portfolio. If successful, this effort may enhance

the university's ability to provide valuable assistance to students while making the best use of the limited resources at its disposal.

Missing Data

As with any large dataset, some cases will lack data in some variables. Special care was taken to limit study parameters to those variables with as complete data as possible. Control variables (gender, parents' education level, and SAT) all presented extremely low levels of missingness. Every student in the current study presented data on their gender (male or female) and the response rate to the parental education question on the FAFSA form was approximately ninety-five percent (95.8% for mothers; 94.3% for fathers). The educational categories provided on the FAFSA form are rather imprecise. Nevertheless, even after converting parental education responses to a continuous measure based on years, missing values were deliberately not imputed. Imputing missing parental education data would have ignored the fact that some came from single-parent homes or family backgrounds in which the student did not know at least one parent. In order to account for these scenarios, the FAFSA consciously includes an "unknown" response category.

Analyzing missingness of the SAT variable required accounting for both missing values and variation in test type. Over 96% (16,845) of sample students presented the SAT, but almost 3% (497) presented only the ACT to fulfill their standardized test requirement for admission consideration. In addition, about 0.5% (84) students were admitted without reporting any standardized test scores. Two steps were taken to ensure that (a) standardized scores were controlled for on a universal metric and (b) missing

values were accounted for in regression analyses. First, all ACT composite scores were converted into SAT units using methods established by Dorans, Lyu, Pommerich, & Houston (1997). Next, missing SAT scores were imputed for the eighty-four cases missing test scores. The difference between mean SAT scores before and after conversion and imputation was less than one point (1,108.86 vs. 1,109).

Expected family contribution is an important predictor variable in this analysis that is derived from the FAFSA. As such, it was crucial that this variable feature a low level of missingness. Primary and comparison samples in this study necessarily excluded those students for whom the UO had no FAFSA data, meaning that they did not apply for federal financial aid. Non-FAFSA applicants are excluded in this dissertation because of the inability to reliably account for EFC and debt load upon graduation. The thoroughness of the FAFSA application process resulted in virtually no missing FAFSA-related data in this sample. Put simply, a FAFSA applicant's failure to submit necessary information to federal processors results in an incomplete application and the student's forfeiture of funding consideration. For the purposes of this dissertation, the federal government's strict enforcement of FAFSA completion, combined with the DBS (and Staton) requirement of FAFSA submission, functions as an effective filter for missing student financial data.

CHAPTER IV

RESULTS

In this chapter I present the results of descriptive and inferential analyses. The descriptive analysis outlines the study sample's basic characteristics (means, standard deviations, and numbers) according to variable type (Table 2). I then show statistical relationships among the study variables (Table 3). The five regression analyses are presented in the order in which the measured outcomes normally occur. Thus, retention analyses come first, graduation analyses next, and graduation debt last.

Descriptive Analysis

Table 2 provides general descriptive statistics for the sample analyzed in this study. As with later correlation and regression analyses, variables are displayed and will be discussed according to their roles as control, predictor, or outcome variables. Table 2 shows that almost 60% of the sample was female. Students reported that their parents had attained, on average, over twelve years of formal education, making the average sample parent a high-school graduate with at least some college experience.

Forty-two percent of students in the sample received one of the three scholarships analyzed in this study. Approximately two percent of students were awarded the Diversity-Building Scholarship, less than one percent the Staton, and almost 39% received the Dean's scholarship. Almost 60% of students received no scholarship or need-based funding. Seventy-seven percent of the sample identified as White, eight percent Asian/Pacific-Islander, four percent Hispanic, and two percent African American.

The average amount each student's family was estimated to be able to pay for a year of college (EFC) was $16,628. The mean combined SAT score was 1,109.

Table 2. *Mean (M), Standard Deviation (SD), and Sample Size (N) of Study Variables (N = 17,426).*

	M	*SD*	*N*
Control variables			
Male	.42	.49	10,113
Female	.58	.49	7,313
Father's education	12.55	2.06	16,479
Mother's education	12.46	2.07	16,726
SAT (verbal and math combined)	1,109	151	17,426
Predictor variables			
DBS scholarship	.02	.14	340
Staton scholarship	.01	.08	120
Dean's scholarship	.39	.49	6,721
Unfunded	.59	.49	10,245
White	.77	.42	13,475
Asian/Pacific-Islander	.08	.27	1,371
Hispanic	.04	.19	643
African American	.02	.15	389
EFC	16,628	20,014	17,426
Outcome variables			
Spring retention	.95	.23	16,555
Fall retention	.85	.36	14,812
Graduated (within six years)	.70	.46	7,793
Terms to graduation	13.31	2.04	7,793
Debt upon graduation	11,504	9,745	7,793

On average, 93% of sample freshmen were still enrolled spring term of their first year at the UO compared to a 71% retention rate at the beginning of their second year. Slightly less than a third of the sample had graduated within six years. Those who had

graduated took an average of just over thirteen terms to receive their bachelor's degree. Finally, students owed an average of $11,504 upon graduation.

Relationships among Study Variables

Table 3 displays bivariate correlation results for all study variables. The large sample size resulted in numerous statistically, though not substantively, significant correlation values. The following summary focuses only on those correlation statistics at the ±.18 or greater level that were statistically significant. The criterion for determining statistical significance was .05.

Both fathers' and mothers' education levels were positively correlated with SAT scores (r = .18 and .20, respectively). There was also a positive correlation between fathers' and mothers' educational attainment (r = .46). Parents' education level was positively correlated with a family's estimated ability to pay college expenses (fathers' education: r = .24; mothers' education: r = .20). SAT scores were positively associated with the Dean's scholarship (r = .22) and negatively correlated with unfunded status (r = -.19). Being awarded the DBS was negatively correlated with those who identified as White (r = -.24) and positively correlated with students identifying as African American (r = .19). Students' ability to pay for college was negatively correlated with debt upon graduation (r = -.30). Students' spring and fall retention were positively correlated with one another (r = .34). Finally, student debt upon graduation was positively correlated with fall retention (r = .35) and the number of terms necessary to graduate (r = .26).

Table 3. *Bivariate Correlations of Control, Predictor, and Outcome Variables (N = 17,426).*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Male	1	.03*	.03*	.13*	-.03*	-.01	-.13*	.14*	-.02*	.00	.00	.03*	.02*	.01	.00	-.04*	.12*	.00
2. Father's education		1	.46*	.18*	-.10*	-.05*	.03*	.00	.08*	-.02*	-.10*	-.05*	.24*	.04*	.04*	-.02	-.03*	-.11*
3. Mother's education			1	.20*	-.10*	-.05*	.03*	.01	.10*	-.06*	-.10*	-.06*	.20*	.03*	.03*	.01	.02	-.10*
4. SAT				1	-.10*	-.02*	.22*	-.19*	.14*	-.07*	-11*	-.17*	.14*	.06*	.09*	-.02	-.07*	-.07*
5. DBS					1	-.01	-.11*	-.17*	-.24*	.13*	.16*	.19*	-.08*	.01	.02*	-.03*	.05*	.01
6. Staton						1	-.07*	-.10*	.00	.00	-.01	.01	-.07*	.02*	.02*	.00	-.03*	-.01
7. Dean's							1	-.95*	.08*	-.02*	-.06*	-.08*	.07*	.06*	.07*	.03*	-.14*	-.03*
8. Unfunded								1	-.02*	-.02*	.01	.02*	-.03*	-.07*	-.07*	-.03*	.13*	.03
9. White									1	-.54*	-.36*	-.28*	.09*	00	.01	.03*	-.09*	-.04*
10. Asian/PI										1	-.06*	-.04*	-.05*	.02*	.01	.01	.06*	.02*
11. Hispanic											1	-.03*	-.06*	-.01	-.03*	00	.01	.02*
12. Black												1	-.06*	00	00	-.03*	.05*	.02*
13. EFC													1	.04*	-.02*	.02	-.07*	-.30*
14. Spring retention														1	.34*	-.01	.08*	.15*
15. Fall retention															1	00	.13*	.35*
16. Graduation																1	-.06*	-.02
17. Terms to graduation																	1	.26*
18. Debt																		1

* $p < .05$

The correlations displayed in Table 3 reveal several diffuse but interrelated patterns. These patterns involve students' gender, parents' education, standardized test scores, funding status, and ethnoracial background. Being male was more closely associated with going unfunded in college than with receiving the Dean's scholarship. Next, parents tended to pair off according to education level and their education was positively associated with the student's ability to pay for college. Parents' education was also linked to their student's ability to pay for college and standardized test scores. Test scores were related to a student's funding status and ethnoracial background. Higher test scores were associated with the Dean's scholarship, and lower scores with being unfunded. Of all the student ethnoracial groups, test scores were positively related only with White students, whereas membership in all other groups was negatively associated with performance on standardized tests. Ethnoracial background was also clearly related to having received the Diversity-Building Scholarship; the DBS was negatively associated with White students, but positively associated with all other student groups.

Regression Analyses

This study analyzed the outcome variables of spring retention, fall retention, graduation, terms to graduation, and debt load upon graduation. Logistic regression was used to predict the likelihood of the dichotomous outcomes of spring/fall retention and graduation. Linear regression was used to predict the continuous outcomes of graduation terms and debt. For all regressions the equation intercept (B0) represented unfunded, White females with average test scores, financial need, and parental education

(see Table 2). The criterion for determining statistical significance in all regression analyses was .05.

Model Assumptions. Model assumptions for all logistic regressions were examined using Cook's influence, standard residuals, and change in regression coefficients due to the influence of each case (DFBetas). All assumptions were met. Analysis of Cook's influence and DFBetas for the *spring retention* regression model identified a single, potentially influential case (Analog of Cook's influence = 1.01; DFBeta for Staton scholarship = -1). The regression was re-run after removing the case. Likelihood coefficients were virtually identical to those of the original model, thus it was decided to retain the case in the fully specified *spring retention* model. Statistical model assumptions for linear regressions were evaluated using Durbin-Watson tests, scatterplots, plots of residuals, and normal P-P plots. Again, all assumptions were met.

In Tables 4-6, *b* is the estimated coefficient and *SE* is the standard error of *b*. The Wald statistic is the squared ratio of *b* to *SE*. *Exp(B)* represents the predicted change in relative odds ratios for every unit change in the predictor.

Spring Retention. Table 4 shows predictions for the likelihood of students being retained through their first spring term. Male and female students were equally likely to be retained spring term. There was a statistically significant association between a father's education level and the student's spring retention. For every one-year increase in the father's educational attainment, the student was 1.04 times more likely to be retained through spring ($p < .05$). Standardized test scores were statistically (though not substantively) associated with likelihood of spring retention; on average, for every one

hundred-point increase in SAT scores, the student was 0.2 times more likely to return spring term ($p < .001$).

Table 4. *Logistic Regression Analysis of Spring Retention (N = 16,555).*

	b	*SE*	*Wald*	*p*	*Exp(B)*
Controls					
Male	0.09	0.07	1.41	.236	1.09
Father's education	0.04	0.02	3.96	.047	1.04
Mother's education	0.04	0.02	3.45	.063	1.04
SAT	<0.00	0.00	36.64	<.001	1.00
Predictors					
Staton	2.24	1.01	4.95	.026	9.40
Dean's	0.46	0.81	31.68	<.001	1.58
DBS	0.46	0.31	2.18	.140	1.58
Asian/PI	0.57	0.16	11.94	.001	1.76
Hispanic	0.03	0.18	0.02	.891	1.03
African American	0.60	0.28	4.45	.035	1.82
EFC	0.10	0.03	8.27	.004	1.10
Intercept	-0.20	0.33	0.38	.538	0.82

Controlling for students' gender, parents' educational level, and students' SAT scores, Table 4 shows statistically significant associations between likelihood of spring retention and both Staton and Dean's scholarships. Staton recipients were 9.4 times ($p < .05$) and Dean's students 1.58 times ($p < .001$) more likely than unfunded students to be retained spring term. There was no statistical difference in likelihood of spring retention between DBS recipients and unfunded students.

Regression results confirmed that Asian/Pacific Islanders and African American students were significantly more likely to be retained for spring term than their White peers. Asian/Pacific Islanders were 1.76 times more likely to still be enrolled spring term

($p < .001$), and African American recipients 1.82 times more likely to be enrolled spring term ($p < .05$). There was no statistically significant difference in the likelihood of spring retention between Hispanic and White students. Table 4 also shows that for every quartile increase in expected family contribution, a student was 1.10 times more likely to be retained through spring term ($p < .01$).

Fall Retention. Table 5 shows predictions of the likelihood of students returning for their second fall term. Male and female students were equally likely to be retained fall term. Father's education level was significantly related to fall retention. For every one-year increase in the father's educational attainment a student was 1.05 times more likely to be retained the following fall ($p < .001$). Standardized test scores were statistically (though not substantively) associated with likelihood of fall retention; on average, for every one hundred-point increase in SAT scores, the student was 0.2 times more likely to return fall term ($p < .001$).

Controlling for students' gender, parents' educational attainment, and standardized test scores, there was a significant scholarship effect on fall retention. Staton recipients were over three times ($p < .01$) and Dean's recipients 1.64 times ($p < .001$) more likely than unfunded students to return for the second fall term. DBS recipients were 1.9 times more likely than their unfunded peers to be retained fall term ($p < .01$).

The differential race effects of funding type observed with spring retention were also observed in the fall retention model. Controlling for gender, parents' education, test scores, and funding status, Table 5 shows that Asian/Pacific-Islanders and African

American DBS recipients were significantly more likely to return fall term than their White peers. Asian/Pacific-Islanders were 1.4 times and African American students 1.64 times more likely to be enrolled spring term (both $p < .01$). There was no statistical difference in the likelihood of spring retention between Hispanic and White students. Table 5 also shows that for every quartile increase in expected family contribution, a student was 1.09 times more likely to be retained through spring term ($p < .001$).

Table 5. *Logistic Regression Analysis of Fall Retention (N = 14,812).*

	b	*SE*	*Wald*	*p*	*Exp(B)*
Controls					
Male	0.02	0.05	0.21	.645	1.02
Father's education	0.05	0.01	13.66	<.001	1.05
Mother's education	0.02	0.01	2.35	.126	1.02
SAT	<0.00	0.00	97.94	<.001	1.00
Predictors					
Staton	1.10	0.37	8.75	.003	3.01
Dean's	0.49	0.06	81.16	<.001	1.64
DBS	0.64	0.22	8.90	.003	1.90
Asian/PI	0.34	0.10	10.78	.001	1.40
Hispanic	0.13	0.14	0.89	.344	1.14
African American	0.49	0.19	6.99	.008	1.64
EFC	0.08	0.02	12.79	<.001	1.09
Intercept	-1.43	0.23	39.06	<.001	0.24

Graduation. Table 6 shows predictions of likelihood of graduation in six years. Males were 0.78 times less likely to graduate than female students ($p < .001$). Parents' education level was significantly related to likelihood of graduation. For every year increase in father's educational attainment a student was 1.06 times more likely to graduate ($p < .001$), whereas the same increase in mother's education was associated with

a 1.03 increase in odds of graduation ($p < .05$). Standardized test scores were statistically (though not substantively) associated with likelihood of graduation; on average, for every one hundred-point increase in SAT scores, the student was 0.1 times more likely to graduate.

Table 6. *Logistic Regression Analysis of Six-Year Graduation (N = 7,793).*

	b	*SE*	*Wald*	*p*	*Exp(B)*
Controls					
Male	-0.25	0.06	20.33	<.001	0.78
Father's education	0.06	0.02	15.00	<.001	1.06
Mother's education	0.03	0.02	4.91	.027	1.03
SAT	<0.00	0.00	41.20	<.001	1.00
Predictors					
Staton	2.03	1.05	3.72	.054	7.60
Dean's	0.73	0.06	144.39	<.001	2.08
DBS	0.65	0.21	10.09	.001	1.92
Asian/PI	0.11	0.11	1.09	.296	1.12
Hispanic	0.07	0.16	0.17	.679	1.07
African American	0.03	0.20	0.03	.865	1.03
EFC	0.15	0.03	32.61	<.001	1.16
Intercept	-2.10	0.26	66.36	<.001	0.12

Odds of graduating were significantly associated with both Dean's and DBS status. Dean's recipients were 2.08 times more likely than unfunded students to graduate ($p < .001$), whereas DBS recipients were 1.92 times more likely ($p < .01$). There was no statistically significant difference in odds of graduation between Staton recipients and unfunded students.

The differential race effect observed in the two retention analyses was not observed in the graduation outcome; students of all ethnoracial groups were equally

likely to graduate within six years. Finally, ability to pay for college was positively associated with graduation. For every quartile increase in a student's expected family contribution, a student was 1.16 times more likely to graduate ($p < .001$).

Tables 7 and 8 display results of linear regression analyses of *terms to graduation* and *graduation debt*. The *b* statistic in the tables is the unstandardized partial regression coefficient and *SE* the coefficient's standardized error. *B* is the standardized partial regression coefficient. The semipartial correlation (*Part r*) is the correlation between the individual predictor and the dependent variable while controlling for all other independent variables.

Terms to Graduation. The regression model displayed in Table 7 explained 4.5% of variability in the number of terms necessary to graduate ($R^2 = 0.045$; $p < .001$). Gender was significantly associated with terms to graduation, with male students taking an average of one-half term longer to graduate than females ($b = 0.48$; $p < .001$). Parents' education was not significantly related to terms to graduation in the full model. Every 100-point increase in SAT was associated with a 0.10-term decrease in the number of terms necessary to graduate ($p < .001$).

There were statistically significant relationships between the Staton and Dean's scholarships and terms to graduation. On average, Staton recipients took 1.58 fewer terms to graduate from the UO than unfunded students ($b = -1.58$; $p < .01$). Dean's recipients tended to graduate about a half-term sooner than unfunded students ($b = -0.49$; $p < .001$). There was no measurable "DBS effect" on the number of terms needed to

graduate; DBS recipients and unfunded students tended to graduate in the same number of terms.

Table 7. *Linear Regression Analysis of Terms to Graduation (N = 7,793).*

	b	*SE*	*t*	*p*	*B*	*Part r*
Controls						
Male	0.48	0.06	8.40	<.001	0.12	.12
Father's education	-0.01	0.02	-0.89	.375	-0.14	-.01
Mother's education	0.02	0.02	1.14	.253	0.02	.02
SAT	<-0.00	0.00	-3.58	<.001	-0.05	-.05
Predictors						
Staton	-1.58	0.60	-2.62	.009	-0.04	-.04
Dean's	-0.49	0.06	-8.42	<.001	-0.12	-.12
DBS	0.11	0.20	0.54	.589	0.01	.01
Asian/PI	0.31	0.11	2.90	.004	0.04	.04
Hispanic	0.03	0.18	0.17	.864	0.00	.00
African American	0.33	0.23	1.42	.154	0.02	.02
EFC	-0.14	0.03	-5.26	<.001	-0.07	-.07
Intercept	14.93	0.28	51.02	<.001		
R^2	.045			<.001		

In examining the relationship between ethnoracial background and terms to graduation, the model shows that there were no statistically significant differences in the number of terms to graduate among Hispanic, African American, and White students. Asian/Pacific-Islanders, on the other hand, tended to take one-third term longer than White students to graduate ($b = 0.31$; $p < .01$). For every quartile increase in EFC, there was a statistically significant 0.14 decrease in the number of terms needed to graduate ($p < .001$).

Debt upon Graduation. Table 8 displays results for the regression analysis of debt upon graduation. This model explained over twenty percent of variability in student

debt upon graduation ($R^2 = 0.205$; $p < .001$). There was a statistically significant relationship between gender and debt, with males owing an average of $547 more upon graduation ($p < .05$). Father's education was also associated with debt; for every one-year increase in the father's education, a student's debt was reduced by almost $300 ($p < .001$). Standardized test scores were positively associated with debt; every 100-point increase in SAT was associated with a $700 decrease in graduation debt ($p < .001$).

Table 8. *Linear Regression Analysis of Debt upon Graduation (N = 7,793).*

	b	*SE*	*t*	*p*	*B*	*Part r*
Controls						
Male	547	249	2.20	.028	0.03	.03
Father's education	-284	69	-4.12	<.001	-0.06	-.06
Mother's education	-89	68	-1.31	.189	-0.02	-.02
SAT	-7	0.86	-8.18	<.001	-0.11	-.11
Predictors						
Staton	-12,816	2,615	-4.90	<.001	-0.06	-.07
Dean's	-2,900	878	-3.30	.001	-0.04	-.05
DBS	-1,099	250	-4.40	<.001	-0.06	-.06
Asian/PI	-914	466	-1.96	.049	-0.03	-.03
Hispanic	247	757	0.33	.744	0.00	.00
African American	404	1002	0.04	.687	0.01	.01
EFC	-3,541	115	30.70	<.001	-0.40	-.39
Intercept	32,876	1,221	26.92	<.001		
R^2	.205			<.001		

There was a statistically significant association between funding status and graduation debt. On average, Staton scholarship recipients owed approximately $12,800 less than unfunded students upon graduation ($p < .001$). Recipients of the Dean's scholarship owed an average of almost $3,000 less than unfunded students ($p < .01$), whereas DBS recipients averaged about $1,100 less than their unfunded peers ($p < .001$).

Regression analysis shows that ethnoracial background was a significant predictor of graduation debt only for Asian/Pacific-Islanders. On average, Asian/Pacific Islander students owed $914 less upon graduation than White students ($p < .05$). Debt for Hispanic and African American students was statistically identical to that of White students. Expected family contribution was significantly related to graduation debt in the model. A one-quartile increase in EFC was associated with an average of $3,541 decrease in student debt upon graduation ($p < .001$).

Summary of Results. Regression analyses of retention, graduation, and debt outcomes revealed several patterns. First, male students posted generally negative outcomes compared with their female peers. Though they tended to be retained at the same rate as females, male students took slightly longer to graduate, were less likely to graduate, and tended to owe more upon graduation. Next, father's education was a consistently significant predictor of student outcomes which was positively associated with retention, likelihood of graduation, and debt load upon graduation. Although statistically significant in all regression analyses, results for standardized test scores were only substantively significant in the debt analysis, with higher scores associated with lower graduation debt.

Ethnoracial background was an inconsistent predictor of student outcomes. Asian/Pacific-Islander status was a significant predictor in all but one regression analysis. Asian/Pacific-Islanders were associated with enhanced retention outcomes over White students, slightly longer graduation times, and reduced graduation debt. The only measurable difference between African American and White students was observed in

predicting retention odds, with African Americans being more likely to persist through spring and return their second fall term. Hispanic students, on the other hand, were statistically indistinguishable from White students in all outcomes.

The most consistently significant predictor of student outcomes was a family's ability to pay for college (EFC). EFC was positively associated with student outcomes in all regression analyses, with perhaps the largest effect observed in the analysis of graduation debt. Standardized test scores also were a statistically significant predictor in every regression.

Table 9. *Means and Standard Deviations (SD) of Study Outcome Variables (N = 17,426).*

	N	Staton	Dean's	DBS	Unfunded
Spring retention	16,555	.99	.96	.96	.93
(SD)		*(.09)*	*(.19)*	*(.21)*	*(.25)*
Fall retention	14,812	.92	.89	.88	.82
(SD)		*(.28)*	*(.31)*	*(.32)*	*(.38)*
Graduation	6,568	.67	.75	.70	.59
(SD)		*(.51)*	*(.44)*	*(.46)*	*(.49)*
Terms to graduation	6,568	12.17	12.98	13.90	13.55
(SD)		*(1.19)*	*(1.89)*	*(2.24)*	*(2.11)*
Graduation debt	6,568	4,674	10,078	11,565	11,983
(SD)		*(5,992)*	*(9,292)*	*(8,961)*	*(9,960)*

Table 9 is a descriptive summary of the effect of funding status on the student outcomes analyzed in this dissertation. This table clearly shows that scholarship recipients of all types tended to outperform unfunded students in all but one of the outcomes (*terms to graduation*). Unfunded students were the least likely of all funding statuses to be retained, to graduate, and also tended to graduate with the highest debt. With only one exception (*graduation*), Staton recipients featured the most positive

student outcomes. Though DBS recipients exceeded unfunded students in all but one outcome (*terms to graduation*), their outcome performance tended to fall at the bottom of the spectrum of scholarship recipients. Of all scholarship recipients, DBS students were the least likely to be retained fall term, took the longest to graduate, and had accumulated the most debt upon graduation.

CHAPTER V

DISCUSSION

The purpose of this study was to examine the effects of the Diversity-Building Scholarship on the student outcomes of retention, graduation, and debt load upon graduation. Student outcomes were interpreted in the context of three research questions focusing on: (a) how DBS recipients compared to other funding groups; (b) how results differed by ethnoracial group; and (c) how results differed by students' level of financial need. In this chapter I summarize and interpret analysis results. The interpretation will then be followed by a discussion of study limitations. The last section will focus on suggestions for further research and policy proposals. It should be noted that funding groups probably differ in many ways. As a result, it would be difficult (or impossible) to isolate effects of any given funding status from differences in the student composition in each group.

Retention

Research Question 1 was concerned with whether the DBS was more positively associated with retention than other funding statuses. I predicted that retention figures for DBS recipients would not differ from Staton and Dean's recipients, but that they would enjoy better retention outcomes than unfunded students. Regression analysis of the potential "DBS effect" on spring retention (see Table 4) found that DBS students were the only scholarship recipients who were no more likely to be retained than unfunded students. All scholarship groups were more likely to return for their second year of

college than their unfunded peers. Among the scholarship groups, the funding effect was strongest for Staton recipients and weakest for Dean's students, with DBS recipients in the middle.

These results only partly supported my hypothesis that DBS recipients would benefit from enhanced retention outcomes compared with unfunded students, and would not differ from Staton and DBS recipients. The results for fall retention were anticipated and, I believe, reflect the generally positive funding effects shown in Table 9. The spring retention results, however, are disconcerting in that DBS recipients are the only scholarship group not to be associated with enhanced retention outcomes. The fact that DBS students enter the UO with the lowest mean high-school GPA and standardized test scores—and thus may be considered the most "at risk" of the UO scholarship groups—may partially explain why their retention behavior is only on par with unfunded students.

Past studies provide some context for these results. Although they differ on details regarding which students benefit most, researchers consistently agree that financial assistance—particularly merit aid—has a positive effect on student retention (Binder & Ganderton, 2004; DesJardines, Ahlburg, & McCall, 2002; Heller, 2004; Ishitani & DesJardines, 2002; Singell, 2004). This supports the finding that the DBS, Staton, and Dean's scholarships were all associated with higher fall retention, though it does not explain DBS students' unimpressive spring retention outcome relative to other scholarship recipients.

What might explain the marked difference between the spring and fall retention outcomes? Previous research has highlighted the role that *perception* of college

affordability plays in student retention (Cabrera, Nora, & Castañeda, 1992; Leppel, 2005; St. John, 2004; Wetzel, 1999). It is possible that, beyond providing real financial assistance, the DBS afforded recipients an additional perceptual benefit not provided to unfunded students. Although this dissertation did not use debt as a *predictor* of retention, the retention literature has found a generally negative relationship between student debt and college retention (Cinedinst, Cunningham, & Merisotis, 2003; Hochstein & Butler, 1983; Ishitani, 2006). It is plausible that students' freshman-year expenditure (and accumulating debt) played a role in these substantially different retention outcomes.

Another reason for the differing retention outcomes may lie in how the variables were used in the respective models. The fall retention outcomes included only those students who were retained through the previous spring term. Assuming that a large majority (if not all of) those students who had dropped out by spring term did not re-enroll for fall, then it is highly probably that the fall retention outcome for DBS recipients would have mirrored the spring retention results reported in this dissertation.

In the second research question I asked if a DBS recipient's ethnoracial background was a significant predictor of retention outcomes. The present analysis found that both Asian/Pacific-Islander and African American students had higher spring and fall retention outcomes than White and Hispanic students (see Tables 4 and 5). It is difficult to account for this finding, especially if one tries to link this outcome with the students' previous academic performance. For example, Asian/Pacific Islander students entered the UO with the highest mean GPA, whereas African American students entered

with the lowest mean GPA and standardized test scores, yet both had better retention habits.

Hispanics were the only minority student group that did not experience enhanced retention outcomes compared to White students. In spite of the fact that Hispanic students had the second lowest academic indicators (GPA and test scores) and second highest need level after African American students, their retention outcomes were statistically indistinguishable from their White peers. As mentioned earlier, this finding conforms with previous research that found Hispanic students to "resemble" White students more than they did African American students (Heller, 1996, 2000b; Jackson, 1989; McPherson & Schapiro, 1991; Shires, 1995).

In the third research question I asked whether a student's level of financial need (as measured by expected family contribution) was a significant predictor of retention, anticipating that EFC would not be a significant predictor of spring retention, but would be positively associated with fall retention. Both spring and fall retention analyses showed that financial need was, in fact, a significant predictor of retention. As ability to pay for college increased by one quartile, a student was approximately 1.10 times more likely to be retained. It is quite plausible that the burden of entering college with fewer financial resources increased the likelihood of a student (and/or the student's family) deciding against further investment, and *vice versa* for higher income students. This interpretation would agree with other research linking higher income with improved college retention (Binder & Ganderton, 2004; Heller, 2004; Herzog, 2008; Singell, 2004). It should be noted that, in addition to linking financial need to motivation, a student's

decision to continue college might be related to other need-related factors (such as family stability, health concerns, transportation, etc.).

Graduation

In Research Question 1, I predicted that there would be no difference in graduation outcomes between DBS recipients and other scholarship holders, whereas DBS awardees would be more likely to graduate within six years than unfunded students. Regression results only partly support these predictions (see Table 6). Both DBS and Dean's recipients experienced better graduation outcomes than unfunded students, with the DBS showing a stronger graduation effect on recipients than the Dean's. Results for Staton recipients, on the other hand, were inconclusive.

These results are mostly supported by previous research which found that scholarship recipients were more likely than non-recipients to graduate at the six-year mark (Horn & Peter, 2003). It is difficult to account for Staton results since conventional wisdom and past research hold that being awarded a scholarship should result in higher odds of graduation—especially considering that Staton recipients experienced such positive relative outcomes in the other regression analyses.

Researchers disagree about the relationships among ethnoracial background, scholarship funding, and graduation. My analyses generally found that race was not a significant predictor of graduation (see Table 6). This finding contradicts previous research suggesting that African American students were more likely than White students to graduate when provided scholarship funding (St. John, Paulsen, & Carter, 2005).

Those invested in positive outcomes for minority students may be disappointed by these results, though it could be argued that no measurable difference is a positive outcome, particularly in the case of African American students. It was earlier noted that African American students who entered the UO as freshmen had, on average, the lowest high-school GPAs and standardized test scores, along with the highest level of financial need. The fact that this student group graduated on par with other student groups may be considered a success considering their academic and financial deficits entering college.

In Research Question 3, I examined the relationship between financial need (EFC) and the likelihood of graduation, anticipating that lower financial need (i.e., higher EFC) would be associated with higher likelihood of graduation. This prediction was supported by previous findings that lower-income scholarship recipients did not enjoy the same graduation benefits as higher-income scholarship recipients. Table 6 confirms that odds of graduation are associated with students' need level. This finding is intuitive and hardly surprising: students with more financial resources—and who enjoy the myriad personal, social, and academic privileges that come with them—were more likely to complete their college education than students who did not have as many financial resources.

Terms to Graduation

In Research Question 1, I predicted no difference in the number of terms needed to graduate between DBS recipients and other scholarship holders, and enhanced graduation outcomes compared to unfunded students. Regression analysis of terms to graduation failed to support either of these predictions. DBS recipients actually took

slightly *longer* to graduate than Staton or Dean's recipients and the same amount of time as unfunded students (see Table 7). Since the regression model controlled for several important academic, demographic, and financial variables, it appears that there were other factors or qualities intrinsic to DBS recipients or their UO experience that resulted in measurably longer times to graduation for them compared to other scholarship recipients. DBS students had, on average, the lowest high-school performance of any scholarship recipients upon entering the UO (as measured by SAT and high-school GPA), the second-highest level of financial need among scholarship recipients, and were more likely than other scholarship recipients to identify as an ethnoracial minority.

It is possible that this result points to other socio-academic factors that may have played a role in the different graduation-time outcomes. Tinto's (1972; 1973) groundbreaking work focused on issues of institutional engagement, particularly among minority and low-income students, and how students' socio-academic experiences influenced enrollment decisions and college success. Factors such as these might be related to the interplay of students' self-image and academic experiences prior to and during their enrollment at the UO. Another possible explanation for this outcome may be the length of DBS funding. Freshman DBS recipients are funded for sixteen terms. It is possible that the DBS's relatively long funding contract encouraged students to continue with their schooling rather than graduating as quickly as other scholarship recipients.

It could be argued that DBS students taking longer to graduate is not, in fact, an unfavorable outcome, and may even be considered a positive development in that DBS recipients used scholarship funding to explore additional academic or personal

opportunities. In order to account for the different graduation times, this interpretation would imply that DBS recipients are unique in some characteristics compared to other scholarship recipients. Furthermore, interpreting longer times to graduation as a positive outcome would also need to account for related outcomes, such as debt upon graduation, for it would make little sense to label longer matriculation periods as a positive result if it was accompanied by higher debt. (This could be examined by controlling for *terms to graduation* in a linear regression.)

In spite of the case for viewing longer graduation times as a desired outcome, conventional wisdom—and certainly the economics of college enrollment—favor graduating sooner rather than later. It is noteworthy that this graduation outcome compared to other scholarships occurred in spite of compulsory advising from the Office of Multicultural Academic Support. This mandatory advising is believed necessary on the basis of the aforementioned academic background of DBS recipients (relative to other scholarship recipients), in addition to perceived differences from other UO students in terms of pre-college academic engagement and preparation for the college experience. It could be argued that this compulsory service failed to ensure that DBS students graduated on par with other scholarship recipients. Conversely, the case could be made that, given many DBS recipients' academic, financial, and socio-experiential backgrounds, such compulsory advising kept DBS students from taking even longer to graduate than other scholarship recipients.

In Research Question 2, I asked if ethnoracial background was a significant predictor of time necessary to graduate. Only Asian/Pacific Islanders were shown to be

statistically different from White DBS recipients, with students from this group requiring about one-third term longer than White students to graduate from the UO. Prior graduation studies provide virtually no information on Asian/Pacific-Islander students and thus give little context for this outcome. There were no statistical differences between White students and students from any other ethnoracial group.

In Research Question 3, I anticipated that EFC would be negatively associated with the number of terms necessary for DBS recipients to graduate from the UO, or that students with fewer financial resources would take longer to graduate than those with more financial resources. This prediction was confirmed by the regression analysis showing that as students' ability to pay for college increased, the length of time it took them to graduate decreased (see Table 7). As with likelihood of graduation, the time it took to graduate may be related to both individual student characteristics and the socio-educational benefits of financial security.

Debt

The small body of previous research on debt load has used this variable as a predictor of student outcomes, particularly graduation (Ishitani, 2006; Knight & Arnold, 2000; Perna, 1997; Singell, 2004), and not as an outcome variable, as in this dissertation. Growing concern over increasing levels of student debt suggested that using debt as the dependent variable would be more useful to members of the professional financial aid community. It is hoped that this approach may help to account for factors contributing to higher debt loads.

In Research Question 1 (DBS versus other funding statuses), I predicted that there would be no difference in debt between DBS recipients and other scholarship holders, and enhanced DBS outcomes when compared to unfunded students. In fact, regression analysis found statistically significant differences in debt load between DBS recipients and all other funding statuses (see Table 8). The significant difference in debt between DBS and Staton recipients may be largely related to how long each group took to graduate; Staton students took fewer terms to graduate than any other funding group studied (see Table 7). The difference in debt load between DBS and Dean's recipients may be attributed to relative award amounts as DBS awards tended to be more lucrative than Dean's awards. The difference in debt load between DBS and unfunded students was anticipated and is rather intuitive: students with scholarship support will, on average, owe less than those students without scholarship support.

Ethnoracial background was a significant predictor of debt among DBS recipients only among Asian/Pacific-Islanders (see Table 8). On average, Asian/Pacific-Islanders owed about $900 less than White students. At face value, this outcome appears favorable in that minority students—i.e., those who tended to have the highest level of financial need upon entering the UO—did not owe more than White students upon graduation, and a significant number of them (Asian/Pacific-Islanders) owed less.

In Research Question 3, I predicted that financial need would be negatively associated with debt. This prediction was based on the common-sense notion that the higher a student's expected family contribution toward college, the less that student would owe at graduation. Analysis of the relationship between financial need and student

debt confirms this: a quartile increase in EFC was associated with a decrease in graduation debt of over $3,500. This finding is supported by previous research showing that lower-income students tended to owe more than higher-income students upon graduation (Clinedinst, Cunningham, & Merisotis, 2003; King & Bannon, 2002; Millett, 2003; Wolanin, 2001).

Study Limitations

Enrollment studies have identified self-selection as an inherent problem in the study of financial aid and college access. This is of particular concern to researchers who focus on the effects of financial aid policies on *all* students who are academically eligible to attend college. One might argue that this is also true for any study attempting to explain the effects of scholarships on retention, graduation, or outcomes.

In response to concerns about self-selection, it seems obvious that any analysis of college enrollees accepts (tacitly or otherwise) the "specialness" of its subject group *as college students*. Program evaluations and treatment studies for this group are valuable to the institution in that they provide recommendations specifically tailored to the campus community being studied. The goal of this dissertation is to provide an institution-specific analysis of the UO's approach to academic equity through strategic use of tuition discounts. Though the narrow focus of this sample may limit generalizability, these findings and forthcoming policy suggestions carry implicit value for UO students and administrators. An exhaustive study of DBS effects on *all* possible UO enrollees and DBS applicants (including both awardees and non-DBS awardees) would require the tracking of everyone who did not enroll at the UO as first-time freshmen. Such a study

would demand observations and measurements for a host of other personal and academic outcomes that fall outside the scope of this study.

I have attempted to control for potential confounds by narrowing the student sample as much as possible. Though UO students of all levels and statuses (including transfer undergraduates, graduates, and law students) are eligible for the DBS and other forms of funding, this study focused only on those students enrolled as freshmen between 1998 and 2006. Non-freshman enrollees may enter the institution at any age and from a wide range of educational institutions and personal/experiential backgrounds. Such a disparate student population would have made the creation of a rational and workable study sample quite difficult. Freshman enrollees, on the other hand, generally entered college at the same age, and most often directly from secondary educational institutions that were roughly comparable. My focus on freshmen was intended to limit un-measurable variability in student experience and administrative outcomes.

Next, sample participants were limited to those awardees who completed the FAFSA and for whom these data were available. This is an important study parameter as it allows for concentration on a fairly cohesive sample while controlling for financial variables related to student outcomes. It is important to note that analysis of debt load was entirely dependent on FAFSA data. Students may borrow funds from any number of sources in order to pay for college. This study was limited to analyzing student debt from federal and state loans, both of which are accounted for in FAFSA data.

As stated in Chapter 3, previous research is mostly based on large-scale, multi-institution datasets—the results of which I argue may not be exactly applicable to any

given institution. I have attempted to address this shortcoming by using UO-specific student data, though efforts to increase internal validity may also weaken the generalizability of my findings. It is hoped that the findings presented here will be of enough value to the UO to offset any compromises made with regards to external validity. Though the results of this study may be limited to the UO or institutions with similar student populations, the model applied might be profitably exported to other institutions in order to answer similar questions.

Focusing on a single institution also raised the issue of smaller sample sizes than those examined in previous studies. Small sample sizes for some student groups in this study may have resulted in Type II errors. This is particularly true in the case of African American students and Staton scholarship recipients.

Another potential threat to validity lies in changes to the DBS program between 1997 and 2006. In 1998 and 1999, the DBS experienced what have alternately been labeled "growing pains," or "administrative inconsistencies." Administrators of the new program had to establish eligibility requirements and enforceable policies in a dynamic and politically charged environment. Prior to 1998 the UO did not offer scholarships whose eligibility was contingent upon the FAFSA. This lack of experience with contingent scholarship eligibility resulted in the inconsistent tracking of FAFSA status for a very small number of recipients in the program's first two years. The number of students who were awarded the DBS without submitting the FAFSA was so low that I was able to exclude these cases from regression models without threatening the study's overall validity.

The next potential validity issue involves changes in academic eligibility requirements in 2003. In an effort to increase the recipients' academic profile and enhance the DBS program's institutional reputation, UO administrators instituted a minimum 3.0 GPA for freshman consideration. This change, along with a significant increase in the UO's general admissions requirements, may have contributed to a new wave of self-selection that favored students with more competitive academic profiles.

There are several variables which might have served as effective controls if they had been available. These omitted variables are related to academic motivation, college goals, and family background. An important area of potential interest concerns the experiential factors contributing to the outcomes studied here. Past research has shown that personal motivation and perceptions of the utility of a college degree can be important factors in student retention, graduation, and financial outcomes (Leppel, 2005; Wetzel, 1999). It is also important to consider that all DBS recipients receive mandatory counseling from the UO's Office of Multicultural Academic Support (OMAS), must complete a community service requirement, and are invited to take part in various leadership and academic-support programs. It is not known how these activities may have influenced their college experiences or factored into retention, graduation, and financial outcomes.

Next, parents' education level is often used as a convenient proxy for these subjective variables. Parents' education is one of the questions asked on the FAFSA form, but the application's broad response categories result in it being imprecisely

measured. Responses were heavily skewed in favor of those parents who have attended at least some college.

Another consideration is the relatively small numbers of African American and Hispanic students in the study. African American and Hispanic students comprised only two and four percent of the sample, respectively (see Table 2). Previous studies have failed to find statistically significant differences between Hispanic and White students, thus it is unclear if sample size was a factor in the non-significance in this analysis. However, non-significant results for African American students in graduation and debt analyses (see Tables 6-8) may be related to small sample size.

Lastly, it should be noted that I served as coordinator of the DBS selection process from fall 2001 through spring 2007. In this capacity I was responsible for dissemination of information about the scholarship, monitoring application procedures and selection criteria, and chairing the DBS selection committee. My role as selection committee chair required that I take part in discussions about ongoing services and programming targeting Diversity-Building Scholars, though I had no policy-making authority or responsibility beyond the recruitment and selection processes. During my tenure as chair of the DBS selection committee I was directly involved in administrative discussions regarding scholarship selection requirements and also played a role in changing DBS eligibility and renewal policies. At no time was I responsible for or involved in DBS programming or services which might directly influence the student outcomes of retention, graduation, or debt load.

Implications and Policy Recommendations

The results presented above point to a mix of positive, negative, and neutral outcomes for DBS recipients. With these results in mind, it seems reasonable that UO administrators' goal should be to better understand the effects of the DBS on student outcomes and, wherever possible, enact policies that will improve outcomes. The preceding results and discussion sections point to several issues, each associated with the outcome variables analyzed in this dissertation and relevant to the UO's future administration of the Diversity-Building Scholarship program. These issues include: a) the generally positive scholarship effect on retention, with the notable exception of the DBS's association with spring retention; b) the positive scholarship effect on graduation debt, but with DBS students owing the most of the scholarship groups; and c) the uneven graduation-time outcomes among scholarship recipients, with DBS recipients being statistically indistinguishable from unfunded students:

Policy Proposal 1. The UO should endeavor to understand the reasons why DBS recipients are not on par with other scholarship groups in spring retention and debt outcomes.

Previous research has found that scholarship funding has a consistently positive effect on student retention (Binder & Ganderton, 2004; DesJardines, Ahlburg, & McCall, 2002; Heller, 2004; Ishitani & DesJardines, 2002; Singell, 2004). The fact that DBS recipients were the only scholarship group to not experience a better spring retention outcome than unfunded students points to some type of uniqueness in DBS scholarship, its recipients, and/or its management compared to other scholarships. Similarly, though

DBS recipients compared somewhat favorably to unfunded students in graduation debt, they still ranked at the bottom of scholarship recipients with regards to how much they owed upon graduation. This again suggests that the differential effects of scholarship funding were related to some unmeasured characteristics of DBS recipients and/or their college experience.

If striving for equitable outcomes among all scholarship groups is a worthwhile goal, then the UO must work to understand why DBS recipients consistently lagged behind other scholarship groups in spring retention and debt outcomes. This would require a more comprehensive data gathering effort focusing on both general demographic and qualitative student data. Samuel and Hoover's (2007) study on debt among African American undergraduates highlights the value of small-scale, qualitative research on how students understand and manage the costs of education and how university programming influences their experiences and enrollment behavior.

Beyond the extant student data gathered through standard admissions and financial aid processes, the UO knows rather little about the students it funds. I believe that a greater understanding of DBS students' backgrounds, motivations, and experiences would assist the UO in ensuring that their outcomes are more comparable with those of other scholarship recipients. (Indeed, such data would be valuable for all funding groups.) This data gathering could be accomplished during orientation or—particularly in the case of DBS recipients—when students access mandated programming resources. Qualitative-ethnographic data could be gathered by graduate students in the College of Education or social science units as part of their academic programs.

Policy Proposal 2. The UO must work to improve time-to-graduation outcomes for DBS recipients.

Diversity-Building Scholars were the only scholarship group to not graduate sooner than unfunded students. Though DBS recipients did benefit from improved *likelihood* of graduating, their relatively long matriculation times no doubt factored into their high graduation debt compared with other scholarship groups. The above proposal to gather more individual data about DBS and other scholarship recipients would most likely help to shed more light on why DBS students take longer to graduate than other scholarship recipients. However, the UO should also make an effort to better understand the effects of mandatory programming that is designed to enhance outcomes for DBS recipients.

Research in this area would necessarily focus on DBS students' interaction with the Office of Multicultural Academic Support—the office to which all DBS recipients are assigned for mandatory academic guidance and monitoring of DBS-related community service projects. It should be reiterated that DBS recipients did experience a significant benefit in likelihood of graduating when compared to unfunded students, though it is not clear whether this is an effect of the scholarship, student characteristics, student-support efforts, or a combination of these and other factors. A formal effort to better understand the effects of OMAS programming on DBS students' outcomes would almost certainly help improve DBS recipients' debt load situation. Findings that linked OMAS programming to improved outcomes could then be enhanced, whereas any links to

neutral or negative outcomes—such as graduation time outcomes—could be recognized and addressed.

Policy Proposal 3. The UO must continue to expand scholarship opportunities for all students.

The results of this analysis show that scholarship funding is generally tied to improved student success as measured by retention, graduation, and debt outcomes. Few colleges or universities will claim to have sufficient resources to fund students at an optimum level, yet this and previous studies point to the tangible benefits of institutional aid. All three of the scholarships analyzed in this dissertation are, to varying degrees, sensitive to student need, and the University of Oregon has recently made strides to expand funding to lower-income students by instituting the PathwayOregon program. Ironically, this new opportunity may exert pressure on the Diversity-Building Scholarship and associated programming as students begin to "shop the scholarship marketplace" for the most beneficial funding options. Even as its funding programs evolve, the UO will need to ensure that it continues to increase scholarship opportunities—particularly for the institution's neediest students—and not simply supplant them with new funding packages.

Summary

Regression analyses showing generally better retention outcomes for scholarship recipients were interpreted to be the result of a positive effect of scholarship funding. This did not explain, however, why DBS recipients did not show better spring retention odds compared to unfunded students. It was suggested that the only average spring

retention outcome for DBS recipients may be attributed to personal or institutional variables unaccounted for in the regression model, or possibly to how the spring and fall outcomes were conceived and implemented in the retention models.

I was unable to offer any compelling explanation of findings that Asian/Pacific-Islander and African American students experienced better retention outcomes than White students, though inconclusive results for Hispanic students did resemble equivocal findings in other studies. The significant association between financial need and retention was interpreted to be an indication of motivation and ability to absorb the cost of college, in addition to other indirect, need-related factors.

The finding that DBS and Dean's recipients were more likely to graduate than Staton and unfunded students is largely consistent with previous research linking scholarship funding to improved graduation outcomes. This does not, however, explain the inconclusive results for Staton recipients. My analysis found that race was not related to graduation odds, contradicting previous findings that African Americans were more likely than White students to graduate when provided scholarship funding. Financial need was found to be positively associated with graduation and was tentatively attributed to the privileges that accompany wealth. This may also help to explain why needy students took longer to graduate than their wealthier peers.

DBS students were the only scholarship recipients to not graduate sooner than unfunded students. This was attributed to both student- and funding-related factors. Only Asian/Pacific-Islanders took longer to graduate than White students. Available data did not allow for an explanation of this result.

My analysis found that all scholarship recipients owed less than unfunded students upon graduation, though DBS students owed the most of all scholarship groups. It is possible that this was related to length of matriculation. Only Asian/Pacific-Islanders owed less than White students, but this was interpreted as a positive finding in that students with the highest need (African Americans and Hispanics) owed no more, on average, than their White peers.

Study limitations involved issues such as possible sample bias, administrative changes that influenced sample characteristics, and the types of variables available for analysis. I discussed the inherently special nature of college students and implications on the representativeness of the sample. This "specialness" was considered to be of little importance, however, because the study findings were not intended to be generalizable, but rather to inform the administrative practices of a particular set of higher educational institutions similar to the University of Oregon. The sample was restricted to FAFSA applicants to ensure accurate measures of financial need and debt, and because the scholarship group of interest—DBS recipients—were all required to submit the FAFSA for funding consideration. It was recognized that changes in DBS eligibility may have influenced the sample of DBS recipients. I also acknowledged the inability to account for a host of student and institutional variables that may have strengthened predictive models.

The occasionally uneven outcomes among scholarship recipients suggest that the UO should make an effort to standardize the effects of scholarship funding. The most important step would be to engage in more robust data gathering on students-related

variables. I then proposed that the UO evaluate the effectiveness of student-support programming in order to both standardize and improve outcomes for DBS recipients. Lastly, I urged the UO to continue its expansion of funding opportunities for low-income students.

REFERENCES

American Council on Education. (2001). *Student borrowing in the 1990s*. Washington, DC: Center for Policy Analysis.

Battagliani, J. (2004). *A comparison of the retention, transfer, and retention rates of need-based financial aid recipients at Maryland public colleges and universities with performance of non-recipients.* Annapolis, MD: Maryland Higher Education Commission.

Baum, S. R., & Schwartz, S. (1988). Merit aid to college students. *Economics of Education Review*, *7*(1), 127-134.

Behrman, J. R., Kletzer, L. G., McPherson, M.S., & Schapiro, M.O. (1992). *The college investment decision: Direct and indirect effects of family background on choice of postsecondary enrollment and quality* (Discussion Paper No. 18). Williamstown, MA: Williams College, Williams Project on the Economics of Higher Education.

Binder, M., & Ganderton, P. T. (2004). The New Mexico lottery scholarship: Does it help minority and low-income students? In D. Heller & P. Marin (Eds.), *State merit scholarship programs and racial inequality* (pp.102-122). Cambridge, MA: Harvard Civil Rights Project.

Blakemore, A. E., & Low, S. A. (1985). Public expenditures on higher education and their impact on enrollment patterns. *Applied Economics*, *17*, 331-340.

Cabrera, A. F., Nora, A., & Castaneda, M. B. (1992). The role of finances in the persistence process: A structural model. *Research in Higher Education, 33*, 571-593.

Campaigne, D. A., & Hossler, D. (1998). How do loans affect the educational decisions of students? Access, aspirations, college choice, and persistence. In R. Fossey & M. Bateman (Eds.), *Condemning students to debt: College loans and public policy*. New York: Teachers College Press.

Choy, S. (2000). Debt burden four years after college. *Education Statistics Quarterly*, *2*(3), 61-64.

Cliff, N. (1987). *Analyzing multivariate data*. New York: Harcourt, Brace Jovanovich.

Clinedinst, M. E., Cunningham, A. F., & Merisotis, J. P. (2003). Characteristics of undergraduate borrowers: 1999-2000. *Education Statistics Quarterly*, *5*(1), 57-61.

DesJardines, S. L., Ahlburg, D. A., & McCall, B. P. (2002). Simulating the longitudinal effects of changes in financial aid on student departure from college. *The Journal of Human Resources*, *37*(3), 653-678.

Dorans, N. J., Lyu C. F., Pommerich, M., Houston, W. M. (1997). Concordance between ACT assessment and recentered SAT I sum scores. *College and University, 73*, 24-31.

Dynarski, S. (2002). *The consequences of merit aid* (Working Paper No. JCPR-WP-315). Chicago, IL: Joint Center for Poverty Research.

The Education Resources Institute, & The Institute for Higher Education Policy. (1995). *College debt and the American family*. Boston: Authors.

Ehrenberg, R. G., & Murphy, S. H. (1993). What price diversity? *Change*, *25*, 64-73.

Field, A. (2005). *Discovering statistics using SPSS* (2nd ed.). London: Sage.

Hansen, W. L. (1983). Impact of student financal aid on access. In J. Froomkin (Ed.), *The crisis in higher education* (pp.84-96). New York: The Academy of Political Science.

Heller, D. E. (1996). *Tuition, financial aid, and access to public higher education: A review of the literature*. Cambridge, MA: Harvard Graduate School of Education.

Heller, D. E. (2000a). *Institutional scholarship awards: The role of student and institutional characteristics*. Paper presented at the annual conference of the Association for the Study of Higher Education (ASHE), Sacramento, CA.

Heller, D. E. (2000b). *The role of race and gender in the awarding of institutional financial aid*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Heller, D. E. (2004). The changing nature of financial aid. *Academe*, *90*(4), 36-38.

Herzog, S. (2008). *Estimating the influence of financial aid on student retention.* Fayetteville, AR: Education Working Paper Archive . Retrieved January 25, 2008, from: http://www.uark.edu/ua/der/EWPA/Research/School_Finance/1802.html.

Hochstein, S. L., & Butler, R. R. (1983). The effects of the composition of a financial aid package on student retention. *Journal of Student Financial Aid*, *13*(1), 21-27.

Horn, L., & Peter, K. (2003). *What colleges contribute: Institutional aid to full-time undergraduates attending four-year colleges and universities*. Washington, DC: National Center for Education Statistics.

Ishitani, T. T. (2006). Studying attrition and degree completion behavior among first-generation college students in the United States. *The Journal of Higher Education, 77*(5), 861-885.

Ishitani, T. T., & DesJardines, S. L. (2002). *A longitudinal investigation of dropout from college in the United States*. Paper presented at the annual meeting of the Association for Institutional Research, Toronto, Ontario, Canada.

Jackson, G. A. (1988). Did college choice change during the seventies? *Economics of Education Review, 7*(1), 15-27.

Jackson, G. A. (1989). *Responses of Black, Hispanic, and White students to financial aid: College entry among recent high school graduates*. College Park, MD: University of Maryland, National Center for Postsecondary Governance and Finance.

Jackson, G. A., & Weathersby, G. B. (1975). Individual demand for higher education. *Journal of Higher Education, 46*(6), 623-652.

Kane, T. J. (1996). Lessons from the largest school voucher program ever. In B. Fuller & R. Elmore with G. Orfield (Eds.), *Who chooses? Who loses? Culture, instututions and the unequal effects of school choice.* New York: Teachers College Press.

Kane, T. J. (1995). *Rising public college tuition and college entry: How well do public subsidies promote access to college* (Working Paper No. 5164). Cambridge, MA: National Bureau of Economic Research.

King, T., & Bannon, E. (2002). *The burden of borrowing: A report on the rising rates of student loan debt*. Washington, DC: The State PIRGs Higher Education Project.

Knight, W. E., & Arnold, W. (2000). *Towards a comprehensive predictive model of time to bachelor's degree attainment*. Paper presented at the annual forum of the Association for Institutional Research, Cincinnati, OH.

Lam, L. T. (1999). *Assessing financial aid impact on time-to-degree for nontransfer undergraduate students at a large public urban university*. Paper presented at the annual forum of the Association for Institutional Research, Seattle, WA.

Leppel, K. (2005). College persistence and student attitudes toward financial success. *College Student Journal*, *38*(2), 223-242.

Leslie, L. L., & Brinkman, P. T. (1988). *The econimic value of education.* Washington, DC: American Council on Education.

Longanecker, D. (2002). Is merit student aid really trumping need-based aid? *Change*, *34*(2), 30-37.

Manski, C., & Wise, D. (1983). *College choice in America.* Cambridge, MA: Harvard University Press.

McPherson, M. S. (1978). The demand for higher education. In D.W. Breneman & C.E. Finn (Eds.), *Public policy and private higher education.* Washington, DC: The Brookings Institute.

McPherson, M. S., & Schapiro, M.O. (1991). *Keeping college affordable: Government and educational opportunity.* Washington, DC: The Brookings Institute.

Millet, C. (2003). How undergraduate loan debt affects application and enrollment in graduate or first professional school. *The Journal of Higher Education*, *74*(4), 386-427.

Moore, R. L., Studenmund, A. H., & Slobko, T. (1991). The effect of the financial aid package on the choice of a selective college. *Economics of Education Review*, *10*(4), 311-321.

Morgan, G. (1996). *Images of Organization.* Beverly Hills, CA: Sage Publications.

Mortenson, T. (1995). The growing importance of financial considerations in college choice. *Postsecondary Education Opportunity*, *38*, 1-7.

Murtaugh, P. A., Burns, L. D., & Schuster, J. (1999). Predicting the retention of university students. *Research in Higher Education*, *40*(3), 355-371.

Nora, A. (2001). *How minority students finance their education.* New York: ERIC Clearinghouse on Urban Education.

Nora, A., & Horvath, F. (1989). Financial assistance: Minority enrollments and persistence. *Education and Urban Society*, *21*(3), 299-311.

Perna, L. W. (1997). *The contribution of financial aid to undergraduate persistence.* Paper presented at the annual meeting of the Association for the Study of Higher Education, Albuquerque, NM.

Samuel, B. D., & Hoover, R. E. (2007). Understanding student loan debt burden for African American baccalaureate graduates. *Enrollment Management Journal: Student Access, Finance, and Success in Higher Education, 1*(1), 49-69.

Savoca, E. (1990). Another look at the demand for higher education: Measuring the price sensitivity of the decision to apply to college. *Economics of Education Review*, *4*(2), 129-144.

Schwartz, J. B. (1985). Student financial aid and the college enrollment decision: The effects of public and private grants and interest subsidies. *Economics of Education Review*, *4*(2), 129-144.

Schwartz, J. B. (1986). Wealth neutrality in higher education: The effects of student grants. *Economics of Education Review*, *5*(2), 107-117.

Selingo, J. (2003). What Americans think about higher education. *The Chronicle of Higher Education*, *49*(34), A10-A13.

Shires, M. A. (1995). *The master plan revisited (Again): Prospects for providing access to public undergraduate education in California.* Draft. Santa Monica, CA: Rand Corporation Institute on Education and Training.

Singell, L. D. (2004). Come and stay a while: Does financial aid effect [sic] retention conditioned on enrollment at a large public university? *Economics of Eduation Review*, *23*, 459-471.

Singell, L. D., & Stone, J. A. (2002). The good, the poor, and the wealthy: Who responds most to college financial aid? *Bulletin of Economic Research*, *54*(4), 393-407.

SPSS Inc. (2003). *SPSS Base 12.0 for Windows User's Guide*. SPSS Inc., Chicago IL.

Stevens, J. P. (1992). *Applied multivariate statistics for the social sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

St. John, E. P. (1990). Price response in enrollment decisions: An analysis of the high school and beyond sophomore cohort. *Research in Higher Eduation*, *31*(2), 161-176.

St. John, E. P. (2004). The impact of financial aid guarantees on enrollment and persistence: Evidence from research on Indiana's twenty-first century scholars and Washington state achievers programs (pp. 124-140). In D.E. Heller & P. Marin (Eds.), *State merit scholarship programs and racial inequality*. Cambridge, MA: Harvard University, The Civil Rights Project.

St. John, E. P., & Hu, S. (2001). Student persistence in a public higher education system: Understanding racial and ethnic differences. *The Journal of Higher Education*, *72*(3), 265-286.

St. John, E. P., Paulsen, M. B., & Carter, D. F. (2005). Diversity, college costs, and postsecondary opportunity: An examination of the financial nexus between college choice and persistence for African Americans and Whites. *The Journal of Higher Education*, *76*(5), 545-569.

Swarthout, L. (2006). *Student debt and consumer costs in the Willamette Valley.* Portland, OR: OSPIRG Foundation.

Tinto, V. (1972). *The effect of college proximity on rates of college attendance*. New York, NY: Columbia University.

Tinto, V. (1973). *Dropout in higher education: A review and theoretical synthesis of recent research.* Washington, D.C.: Office of Education.

University of Oregon (2008a). *Undergraduate 2007-08 Tuition and Fees.* Retrieved March 26, 2008, from Office of the Registrar Web site: http://registrar.uoregon.edu/common/tuition/tuitionrates.php#res_ug.

University of Oregon (2008b). *Facts at a Glance: Fall Term 2007, Fourth Week.* Retrieved March 26, 2008, from Office of the Registrar Web site: http://registrar.uoregon.edu/pdfs/enrollmentStats/facts_f07.pdf.

U.S. Census Bureau (2008). *American FactFinder*. Retrieved April 23, 2008, from: http://factfinder.census.gov/servlet/SAFFPopulation?_event=Search&geo_id=01000US&_geoContext=01000US&_street=&_county=Eugene&_cityTown=Eugene&_state=04000US41&_zip=&_lang=en&_sse=on&ActiveGeoDiv=geoSelect&_useEV=&pctxt=fph&pgsl=010&_submenuId=population_0&ds_name=null&_ci_nbr=null&qr_name=null&reg=null%3Anull&_keyword=&_industry=.

Wetzel, J. N., O'Toole, D., & Peterson, S. (1999). Factors affecting student retention probabilities: A case study. *Journal of Economics and Finance*, *23*(1), 45-55.

Wolanin, T. R. (2001). *Rhetoric and reality: Effects and consequences of the HOPE scholarship. The New Millennium Project on Higher Education Costs, Pricing, and Productivity Working Paper*. Washington, DC: The Institute for Higher Education Policy.