DETERMINANTS OF ALUMNI GIVING RATES

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ABSTRACT

This manuscript examines the determinants of alumni giving rates. The data set is derived from U.S. News & World Report and comprises 196 educational institutions. The combination of decreased state funding for education and increasing costs of education has increased the need to find alternative sources of funds. Alumni donations provide the funds needed along with the signal that alumni are proud of their alma mater. Regression results indicate that the primary determinants of alumni giving rates are institutional acceptance rate, amount of average student debt, percent of students receiving Pell Grants, cost of room and board, value of the institution's endowment, public versus private institutions, percent of full-time students, and percent of female students.

INTRODUCTION

Fundraising efforts at colleges and universities continue to be a top priority for administrators in a higher education environment universally characterized by declining government support as a percentage of total funding. There has been a shift in prioritizing elementary and secondary education over higher education. Higher education is less than one-third of state spending on elementary and secondary education, which comprises 35.1% of total state expenditures (National Association of State Budget Officers, 2007).

A simple search of employment opportunities at a level of college president or dean reveals fundraising ability as an important expectation of the job at most institutions. In order to meet strategic goals, universities compete for top students, faculty and research grants. However, the goals and initiatives are expensive and directly dependent upon accessing funding from donors (Mann, 2007). It becomes a catch-22 for institutions. Donors prefer to give to successful programs but universities need the funds initially to create the successes. Plus, many programs and research projects require several years before fruition, creating a lag effect between donation and success. Furthermore, institutions must continually find new programs that spark the interest of donors.

Higher education's significant and growing dependence upon donations from alumni clearly distinguishes it from other industries. Frequently, a dollar donated by alumni is critically important to an institution because it provides the funding for the margin of success for initiatives that separate one institution from another (Leslie & Ramey, 1988).

Recent reports indicate that the alumni contributions share of expenditures have climbed to over thirty percent. Donations are somewhat distinct from other higher education revenue sources because many times they are based on lagged rather than contemporaneous institutional features, administrative choices, and student body characteristics (Ficano & Cunningham, 2001). Major alumni donors are typically near or in retirement age and remember the university of their youth not necessarily the current characteristics of the institution.

The purpose of this research is to empirically analyze the determinants of alumni giving rates with a focus on financial, institutional, and demographic variables. This paper is divided into four sections. First, a brief survey of the related literature is discussed. The second section provides the model specification and variable discussion. This is followed by an empirical evaluation of the determinants of alumni giving rates for 196 educational institutions employing data from the 2005-06 academic year. The final section offers concluding remarks.

SURVEY OF THE LITERATURE

Scholarly interest on alumni giving to colleges and universities continues to grow. With greater demands on state budgets for health care, prisons, and transportation, education has had to fight for funding and seek an ever increasing amount of alumni-generated donations to make up the difference. Higher education is only 11.5% of general revenue expenditures by state legislatures. This is down from 14.9% in 1990 (National Association of State Budget Officers, 2006).

Even states with relatively stable state budgets, support of higher education is increasing slower than expected. Expenditures for Medicare are the most frequently cited reason for not increasing higher education funding (Walters, 2006). State governments find themselves increasing responsible for the aging population including expenses associated with short hospital stays and minor operations which used to be covered by families or insurance. Furthermore, under the pressure of elections, states choose transportation initiatives and increases in law enforcement for any additional discretionary funds. Higher education is one of the last items funded and one of the first items cut. Moreover, state funding is biased towards construction projects such as new buildings and renovations for standards compliance and not the day-to-day operations of the university (National Association of State Budget Officers, 2007).

A contributing factor to the shift in responsibility back to universities is that universities can raise tuition and fees (National Association of State Budget Officers, 2007). Higher education is viewed as an investment in human capital. Historically, society was willing to contribute significantly to the investment because society gained from the increase in the education and skill level of the labor force. States are increasingly viewing higher education as an individual investment in human capital and not as a public good. Thus, individuals who choose to be educated beyond the primary and secondary level are finding themselves increasingly responsible for the costs of education. Evidence of this change in perception is evidence by the growing number of states that view support of student loan programs as the major part of their higher education initiatives (National Association of State Budget Officers, 2006).

At one time, alumni donations were used for the marginal student who needed scholarships to attend the university or for student organizations to support their travel and activities. Today, donations are an integral part of the budget of a university and necessary for the day-to-day operations.

Over the past two decades, researchers have tested a wide array of variables to identify the most important factors predicting alumni giving rates to alma maters. Mann (2007) categorizes the reasons why donors give and finds that alumni give in order to receive a benefit. The benefit can be altruistic in nature but alumni expect something in return. The return ranges from the good feeling that is associated with helping others to tax benefits. Weerts & Ronca (2007) find that the most giving alumni were not necessarily the best or most engaged students but instead have developed a sense of commitment and responsibility to the institution over many years of involvement. These findings show that it is important for universities to recognize the transaction aspect of donations and make sure that they provide the desired return.

The majority of empirical research in the area of alumni giving suffers from limited model development or a lack of relevance in the quickly changing environment of higher education. Using secondary analysis of 2002 data compiled from *U.S. News and World Report*, Gunsalus (2005) finds sufficient explanatory power in some basic institutional variables including the importance of development activities. Harrison, Mitchell, and Peterson (1995) discover that having an NCAA division I athletic program, whether a school is public or private, and the size of the school's endowment have no significant effect on alumni giving while investment in development personnel, participation in fraternities and sororities, and bequests are important alumni giving determinants. These findings are interesting because many schools put major emphasis on athletics as a tie to alumni donors and view athletics above other school activities.

Okunade and Beri (1997) find the marginal probability of giving to be significantly related to time since graduation, major area of degree, willingness to recommend the university to others, family ties to alma mater, the number of other voluntary donors known, and the availability of matching gifts. Michael (2005) describes the importance of endowment with respect to national ranking and alumni giving rates. These results support the theory that donors prefer to back an already successful institution. Donors are willing to give if others have already given and if they are proud of their alma mater's reputation.

Christou and Haliassos (2006) plus Baum and O'Malley (2003) explore the role of debt in higher education financing and conclude that the increased use of debt has resulted in too much of the financial burden being shifted to students. These results imply that students who accumulated debt may not feel any obligation to assist those students who follow them; instead, expecting future students to amass debt.

Wunnava and Lauze (2001) find that male alumni members, alumni who are close to retirement and the existence of alumni chapters enhance alumni giving rates. Ficano and Cunningham (2001) offer one of the more extensive modern studies. They conclude an institution's academic reputation, the measured scholastic aptitude of the student population, its faculty-student ratio, its function and structure, and the vocational choices of graduates significantly impact alumni giving. These studies imply that alumni who have been successful are more likely to give funds but only if they feel connected to the institution and believe that the institution needs the funds.

Overall, the current literature has focused much more on the psychology of giving instead of who gives. Despite the expansion of research into alumni giving there is still a need for quantitative research to explore the impact of rapidly changing trends such as rising student debt, increasing tuition and fees, and the dramatic expansion of women and minority enrollments.

DATA AND MODEL

The primary source of cross-sectional data employed in this study is the *U.S. News & World Report's* website (usnews.com). The subscription component of the website not only offers traditional information on several colleges but has recently added student debt information for almost 200 colleges and universities.

The general model in this study used to evaluate the determinants of alumni giving rates is comprised of a total of thirteen independent variables from three general categories: four financial variables, five institutional variables, and four demographic variables. The explicit empirical model employed to investigate the determinants of average student debt is specified below as:

$$ALUMGIV_i = B_0 + B_1AVDEBT_i + B_2PPGRANTS_i + B_3TUITIONFEES_i + B_4ROOMBOARD_i + B_5SIZE_i + B_6PUBLIC_i + B_7ENDOWMENT_i + B_8LARGECLASS_i + B_9ACCEPT_i + B_{10}FULLTIME_i + B_{11}FEMALE_i + B_{12}AFAMERICAN_i + B_{13}HISPANIC_i + u_{i,}$$

where ALUMGIV is the percent of alumni giving to the institution, AVDEBT is average student debt for an undergraduate after graduation at an institution of higher education, PPGRANTS is the percent of students receiving Pell Grants, TUITIONFEES is the 2005-06 rate of institutional tuition and fees, ROOMBOARD is the 2005-06 estimated room and board expense at an institution, SIZE is the total number of undergraduate students at the institution, PUBLIC is a categorical variable separating public and private institutions, ENDOWMENT is the size of the endowment at an institution, LARGECLASS is the percent of classes offered with more than fifty students, ACCEPT is the institution acceptance rate, FULLTIME is the percent of students attending school full-time, FEMALE is the percent of female students at the institution, AFAMERICAN is the percent of African-American students at the institution, and HISPANIC is the percent of Hispanic students at the institution.

Several alternative model specifications were considered including control variables for student/faculty ratio, institutional ranking, categorical variables for various regions of the country, and freshman retention. Inclusion of these variables into the model affected the standard errors of the coefficients but not the value of the remaining coefficients or they suffer from excessive multicollinearity with variables included in the model. For these reasons they are not included in the final model.

Table 1: Summary Statistics: Alumni Giving Rates (2005-2006)
n = 196

Variable	Mean	Maximum	Minimum	Standard Dev.
ALUMNIGIV	17	61	3	10.1
AVDEBT	18,367	31,723	4,030	4,709
PPGRANTS	23	57	1	9.9
TUITIONFEES	13,845	34,030	2,955	10,833
ROOMBOARD	7,625	12,554	4,155	1,866
SIZE	13,726	37,509	896	8,585
PUBLIC	0.63	1	0	0.48
ENDOWMENT	811,930,000	22,587,305,000	463,000	222,000,000
LARGECLASS	11.4	29	0	6.3
ACCEPT	63.54	99	10	21.24
FULLTIME	87.2	100	44	10.1
FEMALE	51.8	74	19	9.3
AFAMERICAN	8.6	84	0	9.9
HISPANIC	6.4	75	0	8.2

Descriptive statistics for the model variables are presented in Table 1. Princeton University has the highest alumni giving rate at sixty-one percent, while Nova Southeastern University and Tennessee State University have the lowest alumni giving rate at three percent.

A discussion of the independent variables and their expected impact on alumni giving is in order. The four financial variables are AVDEBT, PPGRANTS, TUITIONFEES, and ROOMBOARD. One of the unique components of this study is the exploration of the impact of student debt on alumni giving rates. Average debt is expected to have a negative impact on alumni giving rates because large debt should limit the ability to give. Monks (2003) reveals that alumni who gave less to their alma mater had loan debt, which limited capacity to give. Average student debt for the data set is $18,367 with a standard deviation of $4,709. Twenty-one institutions have an averaged student debt level above $25,000 including University of Miami, Idaho State University, Duke University, Wake Forest University, University of Notre Dame, Rensselaer University, George Washington University, and Iowa State University. Five institutions have an average student debt level below $10,000. The five represent a diverse grouping of institutions as follows: Princeton University, Harvard University, University of Texas El Paso, University of Hawaii at Manoa, and California Institute of Technology.

Pell Grants are need-based federal grants that had been the starting point for low-income students to attend college. In 1985-86, the maximum Pell Grant would have covered 25% to 30% of the tuition and room and board at an average public institution. By 2004-05, the maximum Pell Grant covers less than 15% (College Board: Trends in Higher Education, 2005). PPGRANTS is expected to have a negative impact on alumni giving as an institution with a large student population receiving Pell Grants is also likely to encompass a student body that faces financial constraints that limit the ability to give to the institution. These individuals may give first to other family members. Idaho State University leads the way with fifty-seven percent of students receiving Pell Grants versus only one percent receiving Pell Grants at Princeton University.

The direct financial cost of education via tuition & fees (TUITIONFEES) and room & board (ROOMBOARD) should have a negative impact on giving rates, holding other factors constant. George Washington University has the data set distinction of having the highest tuition and fees at $34,030 per year versus the low of $2,955 per year at the University of Florida. Room and board expenses reach a high of $12,554 per year at the University of California at Berkley versus a low of $4,155 at Louisiana Tech University. One weakness of the model is that it does not explicitly take into account the level of scholarship support that each institution provides because the information is not readily accessible. Posted tuition and fees are generally not what students pay.

The five institutional variables are SIZE, PUBLIC, ENDOWMENT, LARGECLASS, and ACCEPT. SIZE is anticipated to have a positive impact on alumni giving as large institutions often have high profile athletic teams that help facilitate a long-run relationship between the alumni and the institution. The University of Texas at Austin is the largest program in the sample with 37,509 undergraduate students versus California Tech as the smallest institution with only 896 students. PUBLIC is expected to have a negative impact on alumni giving rates as public institutions have traditionally lagged behind private institutions with respect to alumni development activities. The pedigree associated with a private school education is generally considered to be a rallying point for alumni giving. Sixty-three percent of the institutions in the data set are public institutions.

ENDOWMENT is expected to have a positive impact on alumni giving. People generally prefer to invest in a winner and nothing says success like a large endowment. The largest endowment in the data set is over $22 billion at Harvard University. LARGECLASS and ACCEPT are expected to have a negative impact on alumni giving as large class sizes and a high acceptance rates are not usually associated with the quality required to inspire high rates of alumni giving. The University of California at Davis has the highest percentage of classes fifty or more students at twenty-nine percent. Yale, Harvard, Princeton, Stanford, and Columbia have the lowest acceptance rates, which range from ten to thirteen percent.

The four demographic variables are FULLTIME, FEMALE, AFAMERICAN, and HISPANIC. FULLTIME is expected to have a positive impact on alumni giving as full-time students have a greater probability of engaging in the college experience. Financial burden is a main reason why students drop-out of college as they simply have to go to work (Matz, 2005). Work also forces some students to attend part-time. Of entering freshman, seventy-nine percent of part-time students work while 44.3% of full-time students work (BLS, 2006). In addition, part-time student often work and are not able to fully engage in campus activities resulting in an expected probability of lower rates of giving. Several institutions including Harvard University, Cornell University, California Tech, and Boston College report 100 percent of the undergraduate student body at full-time status versus only forty-four percent at the University of Missouri at St. Louis.

The expected sign on the FEMALE, AFAMERICAN, and HISPANIC are uncertain. There is no inherent reason to believe that one demographic group is more or less likely to give than another demographic group beyond the observation that colleges that cater to minorities have a greater propensity to receive state and federal funds (Fischer, 2006). Nova Southeastern University and Adelphia University have the highest percentage of female students at seventy-four percent. Howard University has the highest percentage of African-American students at eighty-four percent while the University of Texas at El Paso has the highest percentage of Hispanic students at seventy-five percent.

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The estimated empirical relationship between the explanatory variables and alumni giving rates is presented in Table 2. Two model specifications are presented.

The first is a linear specification offering results from the full thirteen independent variable model. The second specification employs a reduced model where insignificant variables are eliminated via a stepwise elimination process in order to reduce potential multicollinearity among the numerous independent variables. None of the independent variables have a correlation in absolute value higher than 0.71 (TUITIONFEES and PUBLIC has the highest correlation), suggesting that excessive multicollinearity is not a problem in the analysis. On the other hand, nine paired independent variable correlations have an absolute value above 0.50 implying that the stepwise elimination procedure might lead to more efficient estimates.

Table 2: Determinants of Alumni Giving Rates (2005-2006)

Variable	Full Model Coefficient (t-statistic)	Reduced Model Coefficient (t-statistic)
Intercept	43.977 (5.11)	45.900 (6.01)
AVDEBT	-0.0002 (-1.85)**	-0.0002 (-1.79)**
PPGRANTS	-0.1424 (-2.22)*	-0.1886 (-3.56)*
TUITIONFEES	0.00013 (0.74)	
ROOMBOARD	-0.0010 (-2.95)*	-0.0010 (-3.06)*
SIZE	-9.07 E-05 (-1.12)	
PUBLIC	-3.2813 (-1.22)	-5.6610 (-4.37)*
ENDOWMENT	1.1 E-09 (4.34)*	1.1 E-09 (4.49)*
LARGECLASS	0.0463 (0.42)	
ACCEPT	-0.1570 (-4.91)*	-0.1556 (-5.39)*
FULLTIME	0.1089 1.90)**	0.1244 (2.30)*
FEMALE	-0.1973 (-3.53)*	-0.2322 (-4.47)*
AFAMERICAN	-0.0558 (-0.99)	
HISPANIC	-0.0725 (-1.13)	
R Square	0.6439	0.6358
Adjusted R Square	0.6184	0.6202
F-Value	25.310	40.800
Notes: *p<.05, **p<.10, and n = 196.		

The results of the two empirical models are extremely consistent. The full and reduced models both explain approximately sixty-four of the variance in alumni giving rates. Seven of the thirteen independent variables are statistically significant in full model specification, while one additional variable is statistically significant in the reduced model. It should be noted that a semi-log model specification was also estimated but not presented as the results yield equivalent results but with coefficients that are not as applicable as the linear specifications are.

Three of the four financial variables in the model are statistically significant. The results indicate that institutions with a large average debt per student (AVDEBT) have a negative and statistically significant impact on alumni giving rates. Student debt creates a financial burden that constrains ability to make alma mater contributions. King and Frishberg (2001) find that 78% of students underestimated the total cost of their loans and overestimated how much they could pay each month upon graduation. Debt problems would almost certainly limit ability to give. In addition, it is also possible that students that accrue significant college debt feel less of an obligation to provide financial support to their degree granting institution. It is clear that those alumni who accumulated debt understand the importance of education. However, they may feel that the university experience is more of a business transaction and not an opportunity. Plus, these graduates may pride themselves on doing it on their own and expect others to do the same.

Percent of students receiving Pell Grants (PPGRANTS) and the cost of room and board (ROOMBOARD) both have a negative and significant impact on alumni giving rates. The negative coefficient on the Pell Grant variable is not a complete surprise as the financial support is an indicator of need and signal that a student may not have the financial resources to participate in alumni giving. The significance of the room and board variable appears to imply that the variation in living expense across institutions has a substantial impact on alumni giving. Inexpensive or reasonably priced room and board appears to enhance college experience and augment the willingness of graduates to give to support an institution after graduation. Furthermore, alumni who stay in the area after graduation face a more reasonable cost of living which increases their ability to give. The summary statistics of Table 1 indicate a room and board standard deviation of less than $2,000 with an average room and board annual cost of $7,625.

The TUITIONFEES variable is positive but highly insignificant. The positive but insignificant coefficient on the tuition and fees variable indicates that direct expense does not have an impact on alumni giving. One explanation might be that more expensive institutions might signal a good educational investment that leads to higher income and institutional satisfaction. A second possible explanation is that financial aid and scholarships confound the impact of variation in tuition and fees on alumni giving rates.

Three of the five institutional variables in the model are statistically significant. The variables PUBLIC and ACCEPT are both negative and statistically significant. The results imply that private institutions significantly outperform public institutions with respect to reaching out to alumni for financial support. Private schools are known for their close-knit campus environment and engagement of students. This engagement extends beyond college as alumni continue to stay active. The negative impact of acceptance rate on alumni giving implies that more selective institutions have a higher probability of garnering financial support from graduates. These two variables also identify schools with a strong reputation. Donors prefer to give to established and successful institutions. The variables ENDOWMENT has a positive and significant impact on alumni giving. Institutions with large endowments such as Harvard and Princeton have a dedicate alumni base that consistently donate back to the institution. The result implies that alumni prefer to give to an institution that other people are also willing to financially support.

The variables SIZE and LARGECLASS are not statistically significant. Large institutions with over 30,000 undergraduate students like the University of Texas, the University of Michigan, and Michigan State University have too many students to develop a significant pattern in alumni giving rates. Large classes can lead to economies of scale associated with the cost of education but this appears to be countered by a lack of attachment to faculty and the institution at a level that would significantly impact alumni giving. University of California at Davis, University of Texas at Austin, Iowa State University, Michigan State University, and Texas Tech University are all institutions with over twenty percent of course offerings featuring a class size of fifty or more students. The institutional variables highlight the trade-offs universities face. Larger classes and more liberal acceptance rates create more students to pay tuition and fees but at a cost of a lack of attachment to the institution. Alumni didn't feel special or unique as students and don't feel that way now as alumni.

Only two of the four demographic variables are statistically significant. The FULLTIME variable is positive as expected. Full-time students have a greater probability of enjoying the college experience and graduating with a positive opinion of the degree granting institution. A review of the data set reveals that many of the institutions with a ninety-eight percent full-time student status or higher also have a high level of alumni giving. The high full-time student status with higher than average alumni giving rates includes Harvard, Princeton, California Tech, Dartmouth College, Rice University, University of California at San Diego, and Stanford University.

The FEMALE variable is negative and statistically significant. The observation that women are less likely to be donating alumni members is consistent with the finding of Wunnava and Lauze (2001) and appears to imply that women focus their philanthropic efforts on organizations outside of the academic realm. Female givers may want to tangibly feel that they are helping someone and the university either does not provide this return or does not know how to approach female donors. Another possible explanation is that female alumni are fairly new and may not have accumulated the wealth to give. Many married, female alumni may give to the husband's institution, especially if there is more of a connection with his university. The impact of the Hispanic (HISPANIC) and African-American (AFAMERICAN) variables on alumni giving appear to be limited as both variables are negative but highly insignificant.

CONCLUSION

The trend in higher education has long been a decline in federal, state, and local government appropriations as a percentage of total funding. Public and private institutions are relying ever more heavily on financial donations from their alumni as a source of budget enhancement (Wunnava & Lauze, 2001). Employing a multiple regression statistical model, eight statistically significant determinants of alumni giving rates are identified.

One of the more interesting results is the negative and statistically significant impact associated with average student debt. Government decisions that students should bear more of the cost of higher education resulting in rising debt levels appears to have a negative impact on alumni giving. Rising student debt might also diminish the sense of obligation to support an educational institution after graduation. Budgetary issues in the form of need and costs have a negative impact on alumni giving rates. A larger percentage of students receiving core financial support via Pell Grants and relatively high room and board costs have a negative and significant impact on alumni giving rates. These alumni may not have the resources to give or give to family members instead.

Selectivity and reputation have a significant impact on alumni giving rates as large institutional endowments, low acceptance rates, and being a private institution are significant determinants of alumni giving. Full-time students are more likely to spend recreational time on campus. This study provides evidence that attachment to an institution as a full-time student has a positive impact on alumni giving rates. Women are revealed to have alumni giving rates that are negative and statistically significant but the demographic variables for Hispanic and African-American are not statistically significant determinants of alumni giving rates.

Overall, the results show a need by institutions to instill in current students and alumni a culture of giving. The emphasis on student loans over scholarships decreases a sense of obligation to help the next generation. Furthermore, current alumni may not see the need for giving if loans are readily available and if their own family members must use loans to attend their alma mater. Institutions must find ways to explain to alumni the rising costs of running an institution and the role that they can play in its future success. Because donors prefer to give to existing, successful institutions, universities must address the lagged effect of giving and results along with engaging alumni in campus events. The lack of substantial female donors indicates a growth opportunity for institutions. They must find ways to reach out to female alumni and present tangible ways for females to donate. The future challenge for the universities is to find ways to match alumni with initiatives and provide the impetus for giving to fund those initiatives.

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