The Sources and Uses of Annual Giving at Selective Private Research
Universities and Liberal Arts Colleges

By

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I.   Introduction

Annual giving to higher education institutions in the United States was about $19.5 billion in fiscal year 2000 and almost half of this total was given to the nation's private research universities and liberal arts colleges (*Voluntary Support of Education 2000*, 2001). Giving to higher educational institutions comes primarily from alumni, parents and other individuals, corporations, and foundations, with a small share of giving coming from religious organizations, fund-raising consortia (such as the United Negro College Fund) and other organizations. Similarly, annual giving is used by academic institutions primarily for current operations, building and equipment and enhancing their endowments, with a small share also going for loan service on debt.

While there have been numerous studies of the determinants of total annual giving and of alumni giving to institutions, including those by Bade & Sundberg (1996), Clotfelter (forthcoming), Cunningham & Cochi-Ficano (2002), Dugan, Mullin & Siegfried (1999) and Shulman & Bowen (2000), no study has sought to explain why the shares of annual giving coming from different sources varies over time or across institutions. Similarly no study has sought to explain why the share of giving going to different uses varies over time or across institutions. Our study addresses the determinants of the cross section variation in these shares using panel data for 30 major private research universities and 30 selective liberal arts colleges that historically have been ranked among the top undergraduate institutions included in *U.S News & World Report's* national research university and liberal arts college categories.

The next section of our paper provides background data on the variation over time and across institutions at a point in time, in the shares of annual giving coming from different sources and going to different uses at these institutions. Section III sketches the analytic framework that leads to the specification in section IV of sets of equations for the sources and uses of annual giving. These equations are then estimated using panel data that span the 1968-69 to 1998-99 period. We conclude by illustrating how these estimates can be used to simulate how changes in key explanatory variables influence an institution's shares of giving coming from different sources and going to different uses.

II. Some Background Data

Panel A of table 1 presents data on the mean shares of contributions that came from alumni, parents and other individuals, foundations and corporations during the 1969-70 to 1998-99 period for the 30 selective private research universities and the 30 selective private liberal arts colleges. The data have been grouped by 5-year intervals to eliminate year-to-year fluctuations. The sum of the shares across the four sources is slightly less than one because other sources of voluntary giving, such as religious organizations and fund raising consortia, are not included in the table.

These data indicate that the importance of the various sources of funding varies across the two sets of institutions. Alumni contribute a greater share of giving for the liberal arts colleges than they do for the universities. In contrast, corporations provide a greater share of the giving received by the universities than they do for the liberal arts colleges. The latter result is undoubtedly due to the much larger volume of research that is conducted at the universities and indicative of the fact that corporate gifts often come to academic institutions in the form of support for research.

The share of giving coming from alumni grew throughout the period for both sets of institutions. The share coming from parents and other individuals declined, with the decline being most pronounced at the liberal arts colleges. The share of giving from corporations fluctuated during the period for both sets of institutions, as did the share of giving coming from foundations

Similar data on the shares of giving going to different uses appear in panel B.[1] The share of giving going to current operations first increased and then decreased during the period. After remaining relatively constant during the first 20 to 25 years of the period, the share going to endowment increased during the last 5 years, with the increase being most pronounced for the universities. Finally, the share going to buildings fluctuated throughout the period.

Focusing on the changes over time in the mean shares of the sources and uses of giving for private research institutions and liberal arts colleges obscures the much wider variation in these shares that occurs across institutions during any period of time. To illustrate this point, table 2 displays for both sets of institutions, the means (across institutions in the category), the standard deviations, and the minimum and maximum values of the shares of total giving attributed to various sources and of the shares of total giving that went to various uses during the 1994-95 to 1998-99 period. The standard deviations of the shares across institutions are sizable, as are the ranges between the minimum and maximum values.

For example, while the mean percentages of giving that came from corporations was 16.7% during the period for the universities and 4.8% for the colleges, the standard deviations were 8.9% and 3.1%, respectively. Indeed the corporate giving percentage

ranged across the universities from 4.6% to 47.9%, and across the colleges from 1.0% to 18.9%, of total giving.

Similarly, while on average the universities allocated 36.9% and the colleges 48.0% of their giving to building their endowments during the period, the share of giving devoted to building the endowment varied from a low of 14.6% to a high of 75.9% at the universities and from a low of 8.6% to a high of 81.4% at the colleges. Other factors held constant, institutions that devote larger shares of their annual giving to endowment will experience more rapid growth rates of their endowment. We shall show that institutions with larger endowments per student also tend to devote larger shares of their annual giving to enhancing their endowments. This behavior helps explain the increased dispersion that has occurred in the distribution of endowment values across institutions.

III.   **Analyzing The Determinants of the Sources and Uses of Giving**

Building a structural model of the sources and uses of giving is a task that goes far beyond this paper. The institutional/year observations that we have access to on the sources and uses of giving are the result of a complex process that depends upon the preferences of and the constraints faced by the different types of donors, as well as the preferences and resource allocation decisions of the academic institutions. We consider the different types of donors and the institutions' behavior below.

Simplifying greatly, alumni can be thought of as maximizing utility functions that depend upon their own consumption and the satisfaction that they get from donating funds to an academic institution. Their economic resources will depend upon the state of the macroeconomic economy and their position in the distribution of family income. Variables such as the academic ability of the institution's student body, the number of

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Chief Executive Officers of Fortune 500 companies that are alumni of the institution relative to the size of the student body, the share of graduates of the institution that were enrolled in fields such as business or engineering and the racial/gender make up of the institution's student body may all be related to its graduates' incomes.

Given their income levels, graduates' desires to contribute to the institution will depend upon their attachment to it. Students may be less likely to "get lost" at smaller institutions and therefore as alumni more likely to remain attached. Given their degree of attachment and income levels, national and state tax policies will influence the funds they have available to contribute and the "price" of each dollar that they contribute (Clotfelter (1985), Auten, Cilke & Randolph (1992) and Auten, Sieg & Clotfelter (1999)).

Alumni may have preferences for certain types of activities and this will likely influence how the alumni gifts institutions receive are allocated across the different uses of giving. However, selective private academic institutions devote considerable resources to cultivating donors and "shaping" their giving preferences. So if a donor gives a restricted gift, this does not necessarily impose any restrictions on what the institution actually does with the funds. For example if an institution is trying to increase its expenditures on undergraduate grant aid to permit it to more vigorously compete for students, a gift that is restricted to undergraduate grant aid may simply displace funds that the institution would have spent on grant aid out of its general revenues. Hence the net effect of the gift may actually be to increase expenditures on some other category of spending, or to increase the endowment. Similarly, if an institution decides that it needs to build a new facility for scientific research, a gift subsequently received by it that is

restricted to funding construction of the facility, although restricted in name, poses no real restrictions on the institution.

Parents of students and other individuals have preferences for giving that may be thought of as similar to those of alumni. Of course parents who have often been the financers of their children's tuition bills must be induced to provide extra funding to the institution in the form of annual giving. Similarly, other individuals, who are neither alumni nor parents of current or former students, must be induced to provide contributions to a specific academic institution, instead of (or in addition to) their contributions to other academic institutions and other charitable organizations.

Giving from a corporation to a given academic institution is influenced by the corporation's profitability and the tax advantages that it receives from giving. Corporate giving to an institution is likely to depend upon the relationship of the corporation to the institution geographically, as an employer of the institution's undergraduate and graduate students, and as a user of the research that the institution's faculty members produce. Many corporations also have programs that match the donations that their employees make to nonprofits (including academic institutions) to encourage their employees to give to worthy causes. The corporate share of these gifts will be booked as corporate giving, while the gifts that are being matched will show up in an academic institution's books at either alumni or other individual giving.

Foundations' giving similarly depend upon an institution's geographic location, the nature of its programs, and the types of students it enrolls. For example, some foundations have special interests in providing funding to institutions that educate underrepresented minority and female students. Foundations also support research in

problem areas that are of concern to them and such expenditures are included in foundation giving.

 A foundation's giving is constrained by its wealth levels. Under federal tax law, each year a foundation must spend at least 5 percent of the average value of it assets during the year or pay, after a one-year grace period, a 15% penalty on the required undistributed amount. If after a second year, the required amount for the previous year was still not distributed, the foundation pays a penalty of 100% on that amount not distributed.[2] Given that large shares of the assets of foundations are invested in stocks, the stock market performance will therefore influence foundations' annual giving.

With limited resources at its disposal, the development office, or using a more current term the "institutional advancement" office, of a college or university must decide how to allocate its staff time across donors. Some institutions believe that building and cultivating alumni support is most important. Others may feel that their alumni base is not sufficiently large or wealthy and instead devote resources to cultivating other individual donors. Still others may focus their efforts on seeking corporate or foundation support. Since the propensities of alumni, corporations and foundations to make contributions for different types of activities differ, how the institution allocates is development staff may depend upon the nature of the uses that it plans for the annual giving.[3]

At the margin, how institutional advancement staff members are allocated will influence the levels of giving the institution receives from different sources. Hence any variable that influences the giving level from one source will influence how institutional advancement staff members are allocated, which in turn will influence the giving levels

received by an institution from the other sources. Thus any variable that influences the giving level from one source should also be expected to influence the giving level from other sources. Put another way, the same set of variables should appear in each source of giving level equation. Similarly, since allocation decisions across uses of giving are simultaneously determined, the same set of variables should appear in each use of giving level equation.

The wealth of an institution, as measured by endowment per student, may influence the annual giving it receives for at least two reasons. First, the level of the endowment at a point in time depends upon past levels of contributions to the university and their uses. To the extent that the levels of contributions and their uses are correlated over time for an institution, the correlation between the endowment per student level and the sources and uses of annual giving may run from giving sources and uses to endowment per student value, rather than visa versa.

Second, there may be real behavioral reasons why higher endowment per student levels may influence giving sources and uses. Success breeds success and it may be easier to raise money the more an institution already has. Recently, however, concern has been expressed that high endowment per student levels, or more precisely high growth rates of endowments, may cause some individual donors to decide to reallocate their gifts to other "more needy" charities (Oster, 2001). Hence increasing endowment values may cause the levels of giving coming from different sources to change.

IV.   Econometric Models.

Our analyses use thirty-one years of annual data from the 1968-1969 to 1998-99 period at the institutional level for thirty selective private liberal arts colleges and thirty selective private research universities. The restriction to these samples was made because of the large share of all academic institutions' annual giving that they receive and to ensure that each sample would be as homogeneous as possible in terms of its institutions' objectives and activities. Our basic methodological approach is to estimate separately for each sample equations of the form:

$$(1)\ \ \text{Log}\,(A_{ijt}) = b_{0j} + b_{1j}X_{it} + b_{2j}Z_t + b_{3j}Y_i + v_{ijt}$$

In equation (1), A_{ijt} is the real per student level of giving in category (source or use) j at institution i in period t, the X are a vector of variables that vary across institutions and over time, the Z are a vector of national level variables that vary with time but not across institutions, the Y are a vector of variables that vary across institutions but not over time, and the v are random error terms. In our empirical work, the Z are replaced by a set of year fixed effects to capture changes in personal income, corporate and estate tax rates, macro economic conditions, and stock market prices. With the inclusion of the year fixed effects, the coefficient of each included variables captures the cross-sectional relationship between the per capita real level of giving in the category and the variable, holding constant all of the other variables included in the model.

Table 3 presents estimates of equations (1) for the logarithm of annual real giving per student coming from different sources for the two samples when year fixed effects are

included.[4] Table 4 presents similar estimates for the logarithm of annual real per student giving going to different uses. Because the same explanatory variables appear in each equation within each system of equations, there is no gain in efficiency from allowing the error terms to be correlated across equations and each equation is estimated separately.[5]

The variables included in each equation are many of the institutional specific variables that the previous section's discussion suggests are likely to be important explanatory variables. A list of the variable definitions is appended to the table 3.[6] Space constraints do not permit us to discuss all of these results and we highlight only few findings here. All of the results we discuss are ceteris paribus findings.

Other things equal, alumni giving per student is higher in both samples of institutions when the ratio of the number of *Fortune 500* company CEOs to the size of the institution's student body (measured in 1000s of students) is higher (CEO).[7] *U.S News & World Report* has been ranking national liberal arts colleges and research universities since the late 1980s, as undergraduate institutions. For each year that the ranking data were available we grouped the institutions in each sample into the top 25 (the omitted category), the remainder of the first quartile of their rankings (TIER1) and the second quartile (TIER2). For each source of giving, giving per student is higher at the top 25 institutions, where students tend to have higher test scores, than it is at the remainder of the TIER I institutions.

The disciplinary composition of undergraduate students' degrees at each institution, as measured by the shares of degrees granted in business (SBUS) and engineering (SENG) influences the levels of giving received by the institution from the different sources. So too, does the size of the institution, in terms of the logarithm of its

number of full-time students (ENR), although the relationship here is often nonlinear. Richer institutions, as measured by the logarithm of real endowment per student (ENDSTU), receive higher levels of giving from all sources (success breeds success), save for corporate giving to the colleges.[8] The logarithm of the real level of research volume per faculty member (RESFAC) is positively associated with other individual, foundation and corporate giving at the universities, and with alumni giving and corporate giving at the colleges.

The gender and racial/ethnic composition of an institution's student body, as well as the proportion of its students that are underrepresented minorities also influence the sources of annual giving. A higher share of undergraduate students that is female (PFEM) is associated with lower alumni and corporate giving at the universities and lower alumni and foundation giving at the colleges, but higher corporate giving there.[9] A greater share of underrepresented minority students (PMIN) is associated with greater levels of foundation but lower levels of corporate giving at the universities and higher levels of other individual giving at the colleges.

The institution's ratio of alumni to its current student body (ALUMSTU), which reflects its age and its historic patterns of enrollment changes, is an important predictor of from where it receives its giving. Colleges and the universities with a large number of alumni relative to their student body sizes receive larger levels of giving from alumni, while the universities also receive higher foundation and corporate giving.

Table 4 presents similar estimates for the levels of giving going to different uses. Highlighting only a few of the findings, a greater share of students graduating with

majors in business is associated with more annual giving being devoted to building and equipment and, for the colleges, a lesser amount being spent on current operations.

Perhaps our most important finding is that the wealth of an academic institution, as measured by endowment per student, influences how the institution allocates its annual giving. Other factors held constant, higher levels of endowment per student are associated with greater amounts of giving being devoted to all three uses of giving. However, the marginal effect is greatest for both the colleges and universities for giving to further build the endowment. As we shall shortly show, this implies that richer institutions devote a greater share of their annual giving to building their endowments.

Research is expensive so not surprisingly, other factors held constant, private universities with higher volumes of research per faculty member devote a greater share of their giving to current operations and a smaller share of their giving to building their endowments. Similarly, universities with a greater share of undergraduate students devote more of their annual giving to current operations and less to enhancing their endowments or to building and equipment. Universities with a higher ratio of alumni to current students also devote a greater share of their annual giving to current operations.

V.   Concluding Remarks

Our paper was motivated by the desire to explain why the shares of annual giving coming from different sources and going to different uses vary across institutions. From equations (1), one can compute the marginal effect of a change in any explanatory variable on the share of giving from each source and the share of giving going to each use. For example, marginal effect of a one-unit change in explanatory variable k on the share of giving going to category 1 at institution i is given by

(2) $\partial S_{i1}/\partial k = S_{i1}(b_{k1}(1-S_{i1}) - b_{k2}S_{i2} - b_{k3}S_{i3})$

In (2), S_{ij} is the share of giving going to use j at institution i and b_{kj} is the marginal effect of a one unit change in variable k on the logarithm of the real level of giving per student devoted to category j (the variable's coefficient in (1)). Analogous expressions exist for the other use shares and for the sources of giving shares.[10] Equation (2) makes clear that the marginal effect of a variable on any share will differ across institutions in each sample and will depend both on the estimated coefficients from each equation, as well as the institution's shares of giving coming from different sources or going to different uses.

Tables 5 and 6 present estimates of the mean and standard deviation of the marginal effects we computed for all of the institutions in each sample, in each case an institution's marginal effect is evaluated using its data for the last year of the sample, 1998-99. Readers can peruse these tables at their leisure, again space constraints permit us only to mention what we believe is our most important finding, the impact of endowment wealth on the uses of annual giving.

As table 6 indicates, higher levels of endowment wealth per student are associated with a greater share of annual giving being directed towards building the endowment at both sets of institutions. Table 3 indicated that, other factors held constant, higher levels of endowment wealth are associated with higher levels of giving from all sources (save for corporate giving at the colleges), so the high endowed per student institutions tend to be the ones that receive the largest annual giving per student. Hence, as long as the

wealthier institutions do not spend a greater share of their annual endowment return or
have a lower average investment return than their poorer competitors, the wealthier
institutions will be the ones whose endowments per student will grow at the fastest
rates.[11] Put another way, they will become richer relative to their competitors over time.
One would expect, and research has showed that this will lead, among other things, to
increases in the dispersion of the generosity of financial aid policies, of faculty salaries
and of faculty/student ratios across institutions over time (Ehrenberg, forthcoming).

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Endnotes

[1] The definition of these shares has varied over time. Up until 1998, all deferred gifts were classified as gifts to endowment. Since 1998, deferred gifts have been classified according to their intended uses. Similarly, gifts to pay interest costs on loans were recorded under gifts to capital until 1984. Since that date, they have been recorded in a separate loan category. However, gifts to repay loans constituted only about 0.1% of the use of donated funds nationwide in recent years (*Voluntary Support of Education 2000* (2001)), table 7 and, as table 2 below indicates, less than .0.3% of the gifts going to institutions in our sample. Finally, it is important to note that the data are not reported in a way that allow one to identify the share of giving going to different uses from each source of giving.

[2] If a foundation has distributed more than the required amount in earlier years, the disbursements above the 5% level in a year may be used to offset under disbursements in future years. The 5% rule was written into the federal tax code in 1981. See Cambridge Associates (2000), for a more complete discussion of the requirements that are set forth under section 4942 of the Internal Revenue Code.

[3] For example, in 1995-96 nationally 55% of the gifts to academic institutions were used for current operations, 30.8% were used to enhance endowments, and 14.2% went to purchase or build buildings and equipment. The percentages of corporate giving to the three uses were, respectively, 71.8%, 11.2% and 17.0%, while the comparable percentages for foundation giving were, 63.9%, 20.1% and 16%(*Voluntary Support of*

Education 1996, 1997). So foundation and corporation gifts are more likely to be used for current operations and buildings than are gifts from individuals.

[4] A table with summary statistics for each of the variables used in our analyses, including correlation matrices of all of the explanatory variables is available from the authors on request.

[5] A strong assumption we are making here is that there are no omitted institutional level variables that are correlated with the included institutional level variables and that also influence the sources and uses of giving.

[6] Appendix tables that are available from the authors on request provide information on how each variable was computed.

[7] We count the number of CEOs with undergraduate degrees from each institution and the number with MBA degrees. We are grateful to Professor Kevin Murphy of the University of Southern California for providing us with the CEO data for the period prior to 1990. We collected data for years after 1990 ourselves from *Fortune*.

[8] An institution's *USNWR* ranking depends upon its expenditures per student, which in turn depends upon its endowment per student. In both our college and university samples, institutions with high endowments per student are thus more likely to be included among *USNWR*'s top 25 institutions. Hence the total effect of higher endowment per student on alumni giving is larger than its partial effect because higher endowment per student also makes it more likely that an institution will be among the top 25 ranked institutions.

[9] For the college sample, we also included a dichotomous variable that indicated whether the institution had ever been a single gender school during the sample period (WOMEN)

as an explanatory variable. While colleges that had ever been a single sex institution had a greater level of alumni giving, holding constant all other variables <u>including</u> the share of undergraduates that was female, the net effect of the female share variable and the single sex institution variable is that level of giving coming from alumni was still lower for these historically single sex institutions as long as the share of undergraduates that was female was greater than .81 (.776/. 951)

[10] The computation for the sources shares ignores the small share of giving that comes from sources other than the ones we have analyzed in our paper.

[11] Wealthier institutions, as measured by total endowment, tend to have higher investment returns and spend a smaller fraction of their endowment each year than do poorer institutions (National Association of College and University Business Officers 2002), chart 12 and table 14.