

9/3/99

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September 1999

Working draft: Not for citation or distribution. Comments welcome.

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Abstract

Using data on former students of a sample of private colleges and universities, this paper examines the pattern of alumni giving. The data are taken from the College and Beyond survey, which covers individuals who entered one of a sample of institutions in the falls of 1951 and 1976. Contributions by these former students to these colleges and universities tend to be quite concentrated, with half of all donations being given by the most generous 1 percent of the sample. Higher levels of contributions are associated with higher income and the degree of satisfaction with one's undergraduate experience, with satisfaction in turn being a function of particular aspects of that experience, among other things.

Alumni Giving to Private Colleges and Universities*

Charles T. Clotfelter

In the sizable empirical literature on the economics of charitable giving, most studies have examined the importance of income and tax deductibility on total contributions.¹ Owing to the nature of the data commonly used in such studies – contributions reported on tax returns – few studies have examined particular kinds of giving.² Nor is it common for these studies to examine the connection of the donor to the donee institution. Yet the sociological literature on giving behavior suggests that such personal connections are quite important in determining the pattern and amount of individual giving, particularly for the affluent.³ The current paper utilizes a new data set that makes it possible to examine one category of charitable giving: the donations of alumni to private colleges and universities. Although the data do not offer the income and tax detail that is common in studies of total contributions, they do provide an unusually rich description of personal connections between donor and donee organization and thus offer new insights on the on the economics of charitable giving. And, in light of the importance of private donations to colleges and universities, the findings are of special importance for higher education in general.

The data are based on the College and Beyond survey, which collected information for

* I am grateful to Thomas Anderson, Chi Leng, Cathleen McHugh, and Robert Malme for research assistance, to Gordon Winston for helpful comments on an earlier draft, and to the Andrew W. Mellon Foundation for providing data and financial support.

three cohorts of individuals who enrolled in a sample of 34 colleges and universities in 1951, 1976, and 1989.⁴ These individuals were surveyed in 1995 and 1996 and were asked questions covering both their college experience and aspects of their current situation. For a subset of 14 of these institutions (all of them private and most of them quite selective), data were collected from the institution's own administrative files on each person's contributions for a number of years. Although not all of the individuals in this resulting sample graduated from these colleges and universities, the vast majority did, and so they are referred to throughout the paper as alumni.

The resulting data set provides an excellent opportunity not only to supplement our knowledge about the factors that affect charitable giving but also to provide insight into what has become a significant source of revenue for private colleges and universities. In 1995/96, alumni contributed \$2.4 billion to 679 private institutions, representing 5.9 percent of their educational and general expenditures (Morgan 1997, pp. 38-39). As market forces cause tuition increases in private institutions to moderate, as they appear to be doing, income from donations seems likely to assume an increasingly important role in their total revenue picture.

These data make it possible to explore several questions of interest and practical importance. It would be useful to know, for example, how large, how widespread, and how steady the contributions are within the alumni population. A related question of interest is the magnitude and variability of lifetime giving. A second important question that can be explored with these data is the connection between an individual's experience with the institution – in this case, largely the experience of having been a student – and subsequent giving behavior. The data set offers several possible measures of student experience to use in answering this question.

A third influence that is known to be related to alumni giving, and which is certainly used in solicitations by institutions, is the common practice among many institutions to place special emphasis on reunion years, those divisible by five.

A fourth area for exploration relates to the admissions and financial aid policies followed by institutions. In this area, one issue that has elicited increasing hand-wringing at private institutions is whether those who accumulate debt from student loans will be less likely to make contributions once they graduate. A more hopeful possibility is that those who receive financial aid will be more generous in the future, in recognition of the financial assistance they received as students. A related issue applies to the preference in admissions commonly accorded to the sons and daughters of alumni. Private institutions may be interested in knowing how these so-called legacies will behave once they become alumni. Although private institutions have and continue to show a preference for children of alumni, there is evidence that this and other non-meritocratic criteria may have become less important over time.⁵ If this is so, and if it implies a shift in the affluence of students attending private institutions, such changes in admissions policies could have long-term implications for alumni giving.

A fifth set of questions into which the current data set invites exploration relates to temporal effects on giving. Because information is available on an annual basis, it is possible to relate contributions to at least two kinds of temporal variations: marginal tax rates (which determine the so-called price of giving) and the value of assets held in the form of stocks.

To provide a background for the present analysis, section I of the paper reviews some of the existing literature regarding alumni giving. Section II describes the data set and the definitions of some of the variables used. Section III examines what the data set implies about

the quantity of contributions. In particular, it is instructive to estimate the amount of donations that will be made over a person's lifetime. Section IV provides a description of the patterns of giving that are revealed in these data. Section V describes regression analysis of alumni satisfaction with their undergraduate college experiences and giving over a five-year period. Section VI takes advantage of the annual data on gifts by individual alumni to explore the implications for timing of gifts and the effect of changes in stock prices. The concluding section summarizes the findings and notes questions that are not addressed in the paper.

I. Research on Alumni Giving

Alumni giving has been the subject of more than a few empirical studies. While some of these studies focus primarily on institutions' understandable interest in identifying which alumni constitute the best prospects for big gifts, most of the studies simply ask what factors are associated with giving. This research seeks to explain both whether individuals contribute at all (reflected in the aggregate by the percentage of alumni who contribute) and the amount contributed. Among the variables found to be associated with both measures of giving, one that also has a prominent place in economic research on charitable giving is income. The work on alumni giving shows that, not only does the amount contributed tend to rise with an individual's income, so does the probability of making any gift at all.⁶ Indeed, the assumption that alumni income strongly influences alumni giving lies behind Willemain et al.'s (1994) speculation about what they view as the democratization of admissions at Princeton during the 1920s. They argue that changes in admissions practices reduced the prevalence of students from wealthy families at Princeton, resulting in a decline in the average size of gifts. Two other variables appearing in

studies of alumni giving which also appear in at least some economic models of giving are age and past giving. As in the more general studies, the level of contributions tends to rise with age, or years since graduation.⁷ As in the case of any lagged dependent variable, if past giving is significant in explaining current giving, as demonstrated by Lindahl and Winship (1992), this significance may indicate the importance of unobserved variables or lags in behavioral response.

Previous studies of alumni giving show several other explanatory variables to be important. One of the most prominent aspects of alumni giving relates to the tradition of making (and asking for) major gifts in “reunion years,” the years since graduation that are multiples of five. All of the studies that present giving by class clearly reveal this regularity.⁸ In addition, two studies (Bristol 1990 and Willemain et al. 1994) show that the size of this reunion effect increased with years since graduation. Other studies have shown the importance of fraternities (Harrison, Mitchell, and Peterson 1995) and family ties to the institution (Okunade and Berl 1997). More generally, some studies have recognized that giving depends in large part on subjective feelings about the institution, that is, the degree to which an alumnus identifies with it. However, as Mael and Ashforth (1992, p.106) state, “surprisingly little is known about the factors which affect alumni attachment and involvement.” As Spaeth and Greeley (1970, pp. 47, 67) demonstrate, the attachment that alumni express is related less to objectively measured features than simply to subjective feelings and their own evaluation of the intellectual and cultural experiences they had as students.

II. Data

As noted above, the College and Beyond study covered three entering cohorts of college

students at a total of 34 colleges and universities.⁹ Each of these institutions agreed to participate in the study, having been guaranteed by the sponsor, the Andrew W. Mellon Foundation, that the anonymity of the individuals would be respected and that calculations comparing institutions would not be published. For all but the largest of these institutions, Mathematica Policy Research, Inc. attempted to survey by mail every person who enrolled in the falls of 1951, 1976, and 1989; for the largest ones, a subset of former students were surveyed. Non-respondents received several follow-up requests. For each former student the information collected in the survey questionnaire was joined with the student records maintained by the institutions, including such items as courses taken, extra-curricular activities, and honors received.¹⁰

For a subset of 20 of the private institutions in the sample, additional information was requested on alumni donations contained in the institutions' own administrative records. Information was received from 14 of these institutions, and it is records from these institutions that constitute the data set used in the current study. Of those 14 colleges and universities, three contain data only on the 1976 cohort. All together, the data set covers a total sample of 2,910 individuals for the 1951 cohort and 7,995 for the 1976 cohort. Because most of the 1989 cohort had only just graduated when the survey was conducted, and therefore would have had little opportunity to establish giving patterns, that cohort is omitted from most of the analysis. The number of years of giving data covered differs from institution to institution.¹¹ Most of the institutions provided giving data, at a minimum, for all of the years from 1991 to 1995.

Variables were defined using both the survey and institutional information. Giving was measured by the dollar amount of contributions received by the institution, and whether or not any contribution was received. These two measures were based in some instances on individual

years and in others on the five-year period encompassing 1991-1995. Information was available for most individuals on household income, marital status, number of children, occupation of parents, sector of employment, volunteer activity, type of high school attended, high school rank, SAT score (for 1976), college major, honors received, graduation status, post-graduate degrees, aspects of the undergraduate experience, and several attitudinal questions. A full list of variables, with their means and other statistics, is given in Appendix Table A1, and Appendix A gives fuller definitions for several of the variables. Also defined, and used in estimating equations, are institution-specific dummy variables, but statistics corresponding to them are not shown in the paper.

When comparing the behavior of these two cohorts, it is useful to remember that any observed differences in behavior could be the result of one or more of the following three effects: cohort, life-cycle, or composition. Regarding the first of these, the members of the 1951 and 1976 cohorts are literally members of different generations, one that experienced World War II as teenagers, the other the end of the Vietnam War. Such contrasts in historical periods will envelope differences in life experiences of many dimensions, and the resulting contrasts between the generations' "world views" cannot be captured adequately with a set of objectively measured variables. Second, the cohorts are at different points in their life-cycles. When they were surveyed, the members of these two cohorts were naturally at different stages of their own lives, being, on average, 62 and 37 years old, respectively, in 1995. To illustrate the most obvious differences between these two cohorts, Table 1 lists the graduation and reunion years for members of each cohort who followed a normal pattern of uninterrupted college attendance. The table also presents data on mortality and on the approximate position of each cohort in the age

distribution of college alumni, based on the demography of the U.S. population. Members of the 1951 cohort, about 79 percent of whom had survived since graduating, would have had their 40th reunions in 1995, by which time only 20 percent of Americans would be older than them. By contrast, almost all those in the 1976 cohort would have still been alive in 1995; they would still be younger than some two-thirds of the population.

A third possible reason for observed differences in behavior between the cohorts is that, due to changes in admissions policies and enrollment trends, the composition of the sample colleges and universities' student bodies -- in terms of gender, geography, race, and economic status -- may have changed over time. As a way of assessing the likelihood of this third possible reason for any observed differences in behavior, Table 2 presents average values for the sampled alumni from 14 institutions with data for the two cohorts examined below, along with comparable information for the 1989 cohort, included for the sake of comparison.¹² The table reveals some marked changes over this period. Reflecting the trend toward co-education in undergraduate schools and colleges, the male proportion in the sample fell from 72 percent in 1951 to 52 percent in 1976. Equally striking is the effect of the opening of admissions to racial and ethnic minority groups, marked by the decline in the percentage white from 98 to 89 percent, a trend that continued past 1976. In the only trend that was not monotonic, the percentage of students from public high schools rose between 1951 and 1976, and then fell again.¹³ Students in the sample institutions were more likely over time to have parents who graduated from college, reflecting the society-wide advance in educational attainment. More striking than this change is the improvement in measured academic quality of students and the broadening geographical appeal of these institutions. Between 1951 and 1976, the average high school rank for freshmen

at these institutions rose from the 77th to the 91st percentile, and the average SAT score increased by a remarkable 129 points, with the improvement in both measures continuing to 1989.¹⁴ Both of these trends are consistent with the findings of Cook and Frank (1993) and Hoxby and Terry (1998), who show that top students have become more concentrated in a relatively small number of elite institutions. The proportion who attended college in their home state or a bordering state dropped between 1976 and 1989, reflecting the nationalization of the elite higher education market.¹⁵ In short, the enrollment patterns in this sample of private colleges and universities did indeed shift over this period, leaving open the possibility that compositional changes should be considered in explaining changes in giving over time.

III. The Magnitude of Giving

Information on giving was collected for four categories: athletics, financial aid, other restricted purposes, and unrestricted. Table 3 shows, by cohort, both the percentage who made contributions in each category and the average amount of contributions for those who did make a contribution. It is clear that relatively few alumni placed any restriction on their gifts, as shown by the low percentages for the three specified categories. Among those who made contributions for those restricted purposes, however, the average gift was in most cases higher than the average for all contributions. Those in the 1951 cohort gave at a higher rate than those in the 1976 cohort, who were on average 25 years younger; while half of the older cohort made gifts in 1995, only about 32 percent of the younger cohort did. Average gifts from the 1951 cohort were also much higher, over twice as high on average than those from the younger cohort. Despite the large differences, it is impossible to conclude from these data alone that one cohort is more

“generous” than the other, since they are observed at different ages. In their study of alumni giving to Princeton, however, Willemain et al. (1994, p. 627) argue that younger classes were indeed less generous.

To see how these indicators of giving stack up against data from other sources, Table 4 compares published figures for 13 of the 14 institutions covered in the present sample with similar measures calculated from the College and Beyond data. Averages were calculated from totals for colleges and universities, calculated separately. According to the published statistics, 41 percent of all alumni in the five private liberal arts colleges made contributions in 1995, compared to 31 percent for the alumni of the eight private universities. The average gift for those who gave anything was \$834 for the colleges and \$1,267 for the universities. Because these average figures cover all alumni, they are not comparable to the calculations based on the College and Beyond data, which cover just two cohorts. These latter figures, given separately for colleges and universities, as well as by cohort, are roughly on the same order of magnitude as the averages based on institutional data, although the percentages who made gifts among the 1951 cohort of college alumni to both types of institutions and (59 and 46 percent) are high, while the average gift for college alumni in the 1976 cohort (\$297) seems rather low. This comparison suggests, however, that the C&B figures for alumni giving are of the same general magnitude as published figures.

Before proceeding to examine patterns of alumni giving, it is interesting to ask about the magnitude of that giving over a lifetime. Since one oft-cited motivation for alumni giving is a desire to “pay back” the institution, one might want to know the value of a person’s lifetime contributions.¹⁶ By combining data in the present sample with information on the age-giving

profile, I compute an estimate of the present discounted value of each person's lifetime contributions. The current data provide a window of at least a few years out of something like five decades of post-graduate life to observe a person's contributions. Using an assumed age-giving profile, one can use the observations obtained from the C&B data to infer estimates of lifetime giving. For each person the present value of this lifetime giving is calculated, at age 22. For those alumni who made no donations during the period of coverage, lifetime giving is assumed to be zero. The method employed in the present paper is described in Appendix B.

Table 5 shows the resulting distribution of putative lifetime giving by these alumni. The top portion of the table shows that 30 percent of 1951 cohort and 42 percent of the 1976 cohort are projected to make no gifts over their lifetimes, based on their failure to make any donation during the sample period. At the other end of the distribution, some 19 percent and 3 percent, respectively, are projected to give more than \$5,000 over the course of their lives. Mean lifetime giving is projected to be over six times higher for the 1951 cohort than for the 1976 cohort. As a point of reference, it is useful to compare these projected quantities with the tuition levels that existed when these alumni entered college. Among the 14 institutions in the current sample, the average tuition in 1951 was \$3,350 in 1997 dollars while it was \$10,677 in 1976.¹⁷ Comparing those figures to the distribution of projected contributions widens the apparent difference between the cohorts, with almost a quarter of the 1951 cohort contributing at least one year's tuition, compared to only about 1 percent in the 1976 cohort.

Although the escalation in tuition over the 25-year period separating the cohorts explains much of the difference in the second set of distributions, the large difference in average putative lifetime giving between cohorts is puzzling. While this gap might well reflect cohort effects, it

seems more likely that they result either from the method of calculation – the estimated age-giving profile used for projections might not be steep enough – or from a “democratization” in admissions that reduced the share of students from wealthy families.

IV. Patterns of Giving

The College and Beyond data allow one to highlight several interesting features of alumni giving. For example, owing to its inclusion of annual giving for a sample of individuals, the present data set allows one to examine donors’ regularity in giving, or lack thereof. Table 6 divides individuals according to the number of years they made contributions during the 1991-1995 period. It shows that over a quarter of those in the 1951 cohort made contributions in each of the five years, compared to only 13 percent who showed the same level of constancy among the younger cohort. At the other end of the spectrum, over a third of the 1951 cohort and over half of the 1976 cohort made no contributions at all during this period. Least common among both cohorts were those who made gifts in only a few years. One pattern that one might expect to observe would be giving in only one year, that being the reunion year. While the percentage giving among both cohorts was indeed highest in 1995, corresponding to the reunion year for those in both cohorts who finished college in four years, the difference seems surprisingly small, as shown in Table 7. The reunion year appears to make a bigger difference in the amount given, at least on average. As Table 7 indicates, the average amounts given during 1995 were well above the five-year average for each cohort, although in neither case was 1995 the highest.¹⁸

One other noteworthy feature of giving that leaps out from the data is its very high degree of concentration. Table 8 shows the percentage of total contributions made during the 1991-1995 period made by donors, ranked by size of gift. It is evident that the bottom 40 percent

of both cohorts gave virtually nothing over this period. The next 40 percent gave a relatively small fraction of the total, leaving the bulk of the giving for the most generous fifth of alumni. In fact, half the dollars given by the 1951 cohort was donated by just 1 percent of its members; for the 1976 cohort that top 1 percent gave 65 percent.

To give a sense of how alumni giving relates to a variety of possible explanatory variables, Table 9 shows how the giving rate and average size of donation, both defined for the five-year period 1991-1995, differ according to a number of variables. For the entire sample, 63 percent of the 1951 cohort made at least one contribution over the period, compared to 48 percent for the 1976 cohort, percentages that can also be inferred from Table 6. Average giving over the entire period for those who made any donation was \$899 and \$270, respectively. By gender, although men and women were about as likely to make any gift, the average size of gifts from male donors was over twice as large as that for women. This disparity apparently has been a concern at previously all-male institutions that became co-ed. Giving patterns differ markedly with income level, with those in the top income class being much more likely to give than those below and having a considerably higher average as well. Political philosophy, on the other hand, shows no systematic relationship to giving. Alumni who had leadership positions in extra-curricular activities gave more than those who did not. Those who remembered someone who took a special interest in them during college were also more likely to give, and to give more. Having graduated from the institution where they first enrolled is strongly related to giving. Legacies, those who had relatives who had previously attended the institution, tended to make larger gifts, and they were slightly more likely than other alumni to give at all. As regards the type of high school attended, there is no clear effect discernible from these averages. SAT score

shows little relation to giving among the 1951 cohort, among those who reported such a score. For the 1976 cohort, however, SAT score is positively related both to the propensity to give and the average level among donors. Having received honors, including Phi Beta Kappa, is associated with higher rates of giving.

The next three items in Table 9 reflect answers to attitudinal questions. The first among these reveals that an overwhelming majority of respondents were “very satisfied” with their undergraduate institution (though the percentage was lower for the younger cohort). Not surprisingly, those who reported being satisfied were more active contributors than those who were not. Similarly, those who were dissatisfied with various specific aspects were less likely to give, and give a lot.

The last three items refer to characteristics of the institutions rather than the respondents. Those who entered liberal arts colleges were more likely to give than those who enrolled in universities, but average giving for those who give was higher among college alumni only for the 1951 cohort. When institutions are divided by tuition level, there is no systematic pattern for giving, but there does seem to be a relationship to the institution’s degree of selectivity in admissions for 1976. For that cohort, the alumni from the most selective institutions were most likely to give and those givers had the highest average giving.

In anticipation of the multivariate analysis of contributions, it is instructive to examine the interaction between two of the strongest factors noted in Table 9: income and satisfaction with the undergraduate institution. Income, of course, has been shown in previous work on charitable giving to be highly correlated with total contributions. That expressed satisfaction should also be important simply seems intuitive. Table 10 presents average giving by income

class and degree of satisfaction with the undergraduate college where respondents first enrolled. Almost without exception, in both cohorts, giving rises with income and is higher within the broad income classes for those who said they were “very satisfied.”

A final, and somewhat different perspective on the factors associated with alumni giving is to focus on the biggest givers. Table 11 compares the top 1 percent of givers to the entire sample, for each cohort. Not surprisingly, those who contributed the most tended to have the highest incomes, with 97 percent making \$100,000 or more. Perhaps correspondingly, they tended also to be conservatives on economic issues. They also were more likely to be leaders in volunteer activities, particularly so with alumni activities. Corresponding to the tabulations shown above, the big givers were more likely than average to have had someone who advised them in college, somewhat more likely to have been satisfied with their undergraduate experience, and much more likely to be satisfied with life in general.

V. Explaining Giving

A major objective of the present study is to take advantage of the considerable detail provided by the C&B data in order to examine the factors associated with one class of charitable donations. As noted above, the sociological literature on charitable giving -- as well as common observation -- suggests that people give to causes and organizations that have meaning for them personally.¹⁹ It appears to be common for donors to have had at least some direct experience with the donee organization, an observation consistent with surveys: volunteers are more likely to make contributions than non-volunteers, and members of organizations are more likely to give than non-members.²⁰ In the case of alumni giving, the potential donors have unusually long and

intensive experiences with the organizations, but these experiences are often distant in time and place. A great advantage of the C&B survey is the information it contains on both objective aspects of the college experience and current subjective assessments of that experience.

Objective aspects include such features as academic major, participation on athletic teams, other extra-curricular activities, graduation status, honors earned, and whether someone took a special interest in the respondent during college. As noted above, the survey also asked respondents for subjective assessments of their overall satisfaction with the school they first attended.

Satisfaction with one's undergraduate experience is a mark of approval that would be expected to induce feelings of gratitude or a desire to enhance the institution's chances of future good influences. It is not surprising to observe, as in Table 10, a strong relationship between satisfaction and giving. Because of this association, it seems especially appropriate to consider the factors associated with that satisfaction.

Exactly how that expressed satisfaction might relate to donative giving is a more complicated matter. While it would be reasonable to believe that satisfaction influences the level of giving, it is not at all clear that satisfaction is exogenous to the donations decision. One possibility is that donations and satisfaction are jointly determined; another is that expressed satisfaction itself is a function of the level of donations. For this reason equations explaining giving are estimated both with and without measures of expressed satisfaction as explanatory variables. Since the equations explaining satisfaction and giving share virtually the same list of regressors, the model for giving without satisfaction can be viewed as something of a reduced-form equation.

Table 12 presents equations explaining the dichotomous variable SATIS, indicating

whether an individual is “very satisfied” with his or her undergraduate experience. One set of equations includes a set of dummy variables to reflect institutional differences in satisfaction; another replaces these with dummy variables to indicate liberal arts colleges (COLLEGE) and selectivity (SEL-1 and SEL-2), the last two signifying the highest and next highest levels of selectivity.²¹ Because of the dichotomous nature of the dependent variable, logit is used for estimation. For each of the four models, the table presents estimated coefficients, standard errors, and implied odds ratios for each explanatory variable.²² Coefficients in bold are significantly different from zero at the 99 percent level. Three factors have consistently significant and positive coefficients: attending a college that was the person’s first choice, having had someone who took an interest in him or her during college (MENTOR), and being very satisfied with life in general. Of these, MENTOR has the strongest association: those who had such a person had twice the odds of reporting they were very satisfied with their college experience. Another factor that had one highly significant coefficient in both cohorts was coming from a public high school. Like the similar equations estimated by Bowen and Bok (1998) for the 1976 cohort, equations (3) and (4) in Table 12 suggest that satisfaction was strongly associated with high income, institutional selectivity, liberal arts colleges, and having earned professional degrees after college. Satisfaction for the 1976 cohort was also associated with having graduated from the institution in question and having received some academic honor, but for neither cohort was participation in athletics or other extracurricular affairs statistically significant. Nor does state of residence or academic major figure prominently in satisfaction.

Turning next to the question of alumni giving, Table 13 presents Tobit regressions using as their dependent variable the logarithm of average giving, over the period 1991-1995. The set

of explanatory variables is quite similar to that used in the equations explaining satisfaction. It excludes aspects of the person's college application (SAT score, high school class rank) judged to be of no relevance to current donations and includes current employment status and the two constructed measures of dissatisfaction. As in the case of the regressions for overall satisfaction, equations were estimated with and without a full set of institutional dichotomous variables. They were also estimated with and without satisfaction as an explanatory variable. The coefficient for GRAD in equation (1) of 1.73 implies that, holding other things constant, those in the 1951 cohort who graduated from the institution gave about three times as much as those who did not. The corresponding coefficient in equation (4) implies that the differential was even greater for the 1976 cohort, almost four times as much.²³ Equations (1) and (4) also imply strong income effects. Between income classes 6 and 9, for example, the amount contributed rises proportionally more than income for the 1951 cohort, while for the 1976 cohort, the implied income elasticity is closer to 0.8.²⁴

The other important explanatory variables for the 1951 cohort implied by equation (1) are overall satisfaction, participation in extracurricular activities and athletics, and having an M.B.A. For 1976 the other important effects are having received a graduate degree from the same institution, being nonwhite (negative), overall satisfaction, being married (negative), expressing dissatisfaction with aspects of the institution other than teaching and research (negative), having been an athlete, having an M.B.A., having received academic honors, and expressing dissatisfaction with the institution's emphasis on teaching and research (negative).

Equations (2) and (5) drop the institutional dummy variables. In their place is a dummy variable for liberal arts colleges and, for 1976, two qualitative variables indicating different

levels of selectivity as indicated by the average SAT scores of matriculants. For both cohorts, the indicator for liberal arts colleges enters strongly and significantly. Other things equal, alumni who attended liberal arts colleges gave about twice as much as those who had been at private universities.²⁵ The patterns of other estimated effects change little for the 1976 cohort, in equation (5), but the patterns do change for the 1951 cohort, with participation in extracurricular activities and athletics and M.B.A. losing significance at the 1 percent level. In their place, three variables that become significant are getting a graduate degree at the same institution, DISSATB, and having attended a public high school.

Equations (3) and (6) present the “reduced form” model, in which all the satisfaction variables are dropped. A common effect between the two equations is that MENTOR, whose effect had evidently been mediated through the satisfaction variables, becomes more important in its own right in explaining the level of giving, being significant at the 1 percent level for the 1951 cohort. For those in that older cohort, having had such a person in college is associated with increased giving on the order of 40 percent. For the 1951 cohort, participation in extracurriculars and athletics once again become significant, as does athletics in 1976.

Because the necessary data were available for only some of the institutions, variables for legacy status and financial aid are not included in these regressions. Other regressions were estimated for the smaller sample of institutions that provided data on financial aid, most of which also provided data on legacy status. These regressions included dummy variables to indicate legacies and recipients of need-based financial aid.²⁶ Both coefficients are statistically insignificant for the 1951 cohort, but they are significant (at the 1 percent level) for the 1976 cohort. The estimated coefficient for having received financial aid among those in the 1976

cohort suggests that previous financial aid recipients contributed about 23 percent less than other alumni. To what extent this coefficient might contain a wealth effect is unclear, but it is consistent with fears occasionally expressed about the depressing effects of college loans, a form of finance commonly included in the aid packages of financial aid recipients in the late 1970s.²⁷ In contrast, legacies in the 1976 cohort gave more than non-legacies, again an effect that might proxy wealth differences.²⁸

In sum, the regression equations explaining alumni giving clearly show the importance of two factors: income and an overall good opinion of one's alma mater. As discussed in the previous section, this overall satisfaction was associated with a number of aspects of the undergraduate experience, most notably the memory of at least one person associated with the institution who took an interest in the respondent. Other indicators of strong association with the institution and satisfaction with life in general were correlated with satisfaction as well.

VI. Giving over Time

Because it contains information on donations over time, the present data set offers the opportunity to investigate the time pattern of donations. One aspect of this time pattern that has received attention in several recent studies of charitable giving is the possibility that taxpayers time their gifts so as to increase the share of deductions taken in years when their marginal tax rates are the highest. Another temporal aspect of giving, which has received little attention from tax analysts, is the effect of movements in stock prices.²⁹ Increasing stock values may not only have a generalized wealth effect on giving, they also have a direct effect to the extent that donors make contributions in the form of appreciated stock. A third feature of the time pattern of giving

in the case of alumni donations is the effect of organized class reunions. As previous studies have shown, alumni giving tends to increase during reunion years.

Although the C&B data set includes annual donations, it contains no information on other personal information that may vary over time, thus making it impossible to use panel data techniques to estimate the complete model of donations. In particular, information on income is available for only one year, meaning that a fixed-effects model using the current data would thus necessarily leave out income altogether. Despite the obvious disadvantage of omitting income effects, such a limitation ironically has the advantage that variation over time in the price of giving can thus arise only from changes in the tax law, which obviates the identification problem as it relates to the price effect, a problem that plagues the empirical charitable giving literature.³⁰

Although the data limitations prevent the use of a full-fledged fixed effects model, there are other advantages in estimating a limited model in first differences, the most important being the “differencing out” of unobserved personal characteristics that affect the level of giving. The price of giving was calculated by applying an estimate of taxable income for each income class in each year to the federal income tax rate schedules.³¹ Both giving and price are measured as logarithms. Stock prices are reflected by the log of the S&P 500 average, expressed in constant dollars. Finally, reunion years are indicated by a dummy variable indicating every fifth year following the person’s actual college graduation. In first differences this dummy variable yields, for a person who graduated in 1955, for example, a value of 1 for 1994-95 and a value of -1 for 1995-96. Because the donations data apply to fiscal years, the stock and price variables, which correspond to calendar years, are effectively lagged six months.

Table 14 presents the estimated equations. Their very low R^2 's indicate how little of the

variation in giving over time is explained by this simple model. Nevertheless, changes in stock prices are shown to be statistically significant in explaining changes in giving, with implied elasticities larger than 0.35. Changes in price are not significant, however. While this result may suggest that alumni giving is not responsive to the tax-defined price of giving, it seems more likely that the imprecision implicit in calculating the marginal tax rate may be biasing the coefficient toward zero. Finally, the reunion variable is significant only for the older cohort. This finding corresponds to the giving-age profiles that feature larger spikes for later reunions than for earlier ones.³²

VII. Conclusion

Using a rich data set on former students from 14 selective private colleges and universities, this paper examines the factors associated with alumni donations. The data come from the College and Beyond study, which combines survey data with data from the institutions' own records for three cohorts of former students. Although the data contain less income detail than most economic analyses of charitable giving, they offer an unusual amount of information describing each former student's past association with his or her undergraduate college. This information allows an unparalleled glimpse into the connection between donor and recipient organization. It also provides a look at patterns of donations over time to a single organization, an aspect of giving behavior that has not previously been examined.

While the act of donating is relatively common among these alumni, the paper reveals that alumni giving is extremely concentrated, with over half of all donations being given by just 1 percent of all alumni. A surprisingly high proportion of the alumni of these private institutions

contributes annually. Based on the amount of contributions they made over the period of observation, some of these alumni are projected to give substantial amounts over their lifetimes.

Not surprisingly, the amount and regularity with which alumni make donations to their alma maters is highly correlated to their expressed satisfaction with their own college experiences and other measures of satisfaction with the institution. Their satisfaction, in turn, is systematically and consistently related to several aspects of that experience, including whether the person had attended a public school, whether the college had been the person's first choice, and whether there was someone who took a special interest when he or she was enrolled there.

The level of alumni donations was strongly associated with income and with whether or not the person graduated from the institution where he or she first attended college. Those who graduated from liberal arts colleges tended to give more than those who attended universities, and giving levels tended to be highest at the most selective institutions. Among the more recent cohort of graduates, those who had received need-based aid tended to give less and those who were related to former alumni tended to give more. Some of these findings may reflect the effect of otherwise unmeasured wealth. While it is surely not the most important reason for institutions to examine their admissions policies, these findings do highlight the connection between admissions and future donations and the possible long-term consequences of the increasingly meritocratic – as opposed to aristocratic – character of admissions at elite institutions. To the extent that affluent students make way for high-achieving ones, future prospects for alumni giving naturally will depend on the earning success of the latter versus the lost advantages of inherited wealth. If it turns out that such meritocratic tendencies do come at the expense of future contributions, this unintended consequence will be merely one more example of the

maxim of the free lunch.

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Appendix A

Sample, Data Reliability, and Variable Definitions

As noted in the text, the College and Beyond data set is composed of information gathered from surveys of individuals as well as information gathered from participating institutions. In addition to these basic data, the present study includes as well information gathered from some participating institutions on alumni contributions. While general issues of sampling and reliability for the C&B data are discussed in Bok and Bowen (1998, Appendix A), it is useful here to note the special issues that arise in analyzing this information on alumni giving.

Donations Data

The first and probably most important concern that arose on inspecting the data on donations provided by the institutions was the possibility that they are of uneven quality, that the different administrative regimes in which they were collected led to differences in coverage or accuracy, an issue that touches the donations data as well as the data for other variables, as noted below. Each institution provided donations data for a group of former students corresponding to each cohort. Mathematica Policy Research, Inc. then matched this information with the other data on these individuals, noting explicitly whether donations data were available for each person. For a small number of institutions, especially in early years, almost all of those individuals with donations data had in fact made contributions, suggesting that records might exist only for those who made gifts. To account for the reasonable possibility that some institutions were more diligent than others in keeping records on those who made no

contributions, the assumption was made for most institutions in most years that missing observations in the institutional donations data in fact signify zero donations. The exceptions to this assumption were institutions which provided no donations data at all for one cohort or which provided no donations data for a certain year. In these cases, the cohort or the year for that institution was simply dropped from the analysis.³³ In a couple of cases, an institution provided no information on one of the four components of giving, such as contributions for athletics. In these cases, since the omitted component was a very small proportion of total alumni donations, as shown in the text, total giving was based on the available information.

A related, but different problem would occur if institutional information were incomplete in another way, if records of some gifts were missing or incomplete. In this case, the assumption that missing data means zero donations would be incorrect and would lead to an understatement of contributions.

A third general concern is that the sample might be biased, in that contributors would be more likely than non-contributors to be sampled. This might occur if survey response rates are higher for those who are enthusiastic about their alma mater, which might mean those who make contributions. Another way the sample might become biased is if non-givers are harder to reach, for example if institutions have more up-to-date addresses for contributors, which would mean a higher likelihood of being reached by those conducting the survey. In either case, the survey would then include alumni more likely to give.

Tabulations comparing response rates and availability of giving data indicated that at least the last of these concerns may be justified. Those for whom their institution had giving data had higher survey response rates than those whose institutions had no giving data, and, of

those with giving data, individuals who made gifts during 1991-95 were more likely to respond to the survey than those who did not give. These findings would suggest that means derived from the College and Beyond survey probably overstate the true average giving for all alumni. It is less clear whether the coefficients of estimated models would be biased, however, or in what direction. Furthermore, to the extent that there are differences among institutions in the quality of the donations data, the institution-specific intercepts would tend to account for them.

Variable Definitions

In addition to the short descriptions of variables given in Tables 16a and 16b, it is worth noting several of the variables in more detail. Data are available from a household survey of alumni and from the institutional records of the participating colleges and universities.

Survey Data

The survey provides information on a variety of personal characteristics, such as income, race, marital status, employment, and post-graduate education. It also includes several questions that serve as overall assessments of the person's undergraduate experience at the institution, information about important contacts made during the undergraduate years, and about overall satisfaction with life.

SATIS. The survey question was: "Overall, how satisfied have you been with the education you received at the school at which you first enrolled?" SATIS = 1 if the respondent answered "very satisfied." (The alternatives were somewhat satisfied; neither satisfied nor dissatisfied; somewhat dissatisfied; very dissatisfied.) About three-quarters of those in the 1951 cohort so reported, compared to 65 percent in the 1976 cohort.

Two additional variables, DISSATA and DISSATB, were defined to measure

dissatisfaction with the college or university's current practices. Respondents were asked, "Please indicate how much emphasis you believe your undergraduate school currently places on" a number of aspects, ranking each from "a great deal" (5) to "very little/none (1). Then, for the same list, they were asked how much their institution *should* place on each aspect. A respondent was deemed to be dissatisfied with the institution with respect to an aspect if the difference between these two rankings was 2 or more, in either direction. DISSATA takes on the value 1 if the person meets this dissatisfaction criterion for either faculty research or undergraduate teaching. DISSATB is 1 if the criterion is met for any one of another seven aspects: a broad liberal arts education, intercollegiate athletics, extra-curricular activities other than intercollegiate athletics, a commitment to intellectual freedom, a racially/ethnically diverse student body, quality of residential life, and alumni/alumnae concerns.

An important piece of information is derived from the survey question, "While you were an undergraduate, did anyone associated with your school, other than fellow students, take a special interest in you or your work – that is, was there someone you could turn to for advice or for general support or encouragement?" (Bowen and Bok 1998, p. 319, question A11). The dichotomous variable MENTOR takes on the value of 1 for an affirmative answer. About half of those in the current sample reported affirmatively on this question.

Another variable is one that is used widely in attitudinal surveys: "In general, how satisfied would you say you are with your life right now?" with five possible answers ranging from "very satisfied" and "somewhat satisfied" to "very dissatisfied" (Bowen and Bok 1998, p. 329, question D1). The variable LIFESAT is set to 1 for those answering "very satisfied." Some 90 percent of those included in the current samples gave this answer.

Income is based on total household income for 1995 before taxes, reported as one of ten categories (Bowen and Bok 1998, p. 330, question D8).

Institutional Data

In addition to information on contributions, data were also supplied directly by the institutions on aspects of each student's application material, academic performance, and extra-curricular activity while in college. Bowen and Bok's (1998) discussion of the methodology following in the C&B study inspire confidence about the accuracy of the institutional data. Information on the alumni's SAT scores, state of residence at time of application, and induction into Phi Beta Kappa, for example, seem especially likely to be accurately recorded. One might expect, however, that the accuracy of some of these data might depend on the quality of administrative record-keeping, as well as the precise definitions used in each institution. Not only might institutions differ in the number and criteria for academic honors they award, for example, but institutions might well differ in the completeness of their records of participation in extra-curricular activities or athletic teams. In fact, some data items at some institutions were not available at all. In this latter case, dummy variables were added signifying no data available. For possible variations in quality, however, little can be done but to accept the data reported by the institutions.

Information taken from college applications included SAT (for 1976 only), divided into categories (over 1299, 1200-1299, 1100-1199, 1000-1099, under 1000), whether the student had finished in the top 10 percent of his or her high school class, and whether he or she was classified as a legacy, or relative of an alumnus or alumna (LEGACY).

From the institution's records on enrolled students, information was collected on

academic major and whether need-based financial aid had been awarded (FA). Information on activities were used to define two additional variables. First, a dummy variable for participation in extracurricular activities, EXTRAPAR, equals one if the institutional records show that the person had been involved in extra-curricular activities such as: publications, singing group, orchestra/band/jazz ensemble, volunteer, drama, dance, government, yearbook, debate, cheerleading, sports manager, fraternity/sorority officer, ROTC, ethnic club, black sorority/fraternity, resident advisor, peer educator, campus social chair. Note that mere membership in a non-black sorority or fraternity is omitted from this list, as is participation in intercollegiate sports, which is covered by another variable. Second, ATHLETE is a dummy variable playing on the varsity, junior varsity, or freshman team for a college team competing in intercollegiate athletics. Finally, variables were defined for having been a member of Phi Beta Kappa or the recipient of some academic honor (PBKHON) or having graduated from the institution (GRAD).

Three additional institutional variables were added to signify important distinctions among institutions. First, a simple dichotomous variable COLLEGE indicated whether the institution was a liberal arts college. Second, following Bowen and Bok (1998, p. 339), institutions were divided into three groups based on the combined average SAT of matriculants in 1976: SEL-1 for those institutions with average SAT's of 1300 or higher, SEL-1 for 1150-1299, and SEL-3 for those below 1150. Of the 14 institutions included in the present sample, the numbers in the three categories were five, seven, and two, respectively. Third, information on the institution's tuition, contemporaneous to each cohort, was obtained from college guides and summarized in three categorical dichotomous variables for each year. For the 1951 cohort, these

were based on tuition figures reported in *Lovejoy's* (1952). TUIT51-1 was assigned the value of 1 for institutions with reported tuition of \$700 or more per year, TUIT51-2 for \$550-699, and TUIT51-3 for less than \$550. The number of institutions in these categories was three, five, and six, respectively. For the 1976 cohort, these were based on tuition figures reported in Cass and Birnbaum (1977). TUIT76-1 was assigned the value of 1 for institutions with reported tuition and fees of \$4,200 for more, TUIT76-2 for \$3,600-4,199, and TUIT76-3 for less than \$3,600.

Appendix B

Calculation of Putative Lifetime Donations

In order to infer the value of an individual's lifetime contributions, I assume that the donations made during the years of observation are representative of the individual's lifetime giving. If the individual makes no gifts during the observation period, I assume he or she never gives. For all the rest, I make the assumption that everyone's lifetime pattern of giving has the same shape, differing proportionally only in amount. The assumed age-giving profile is based on an estimated relationship for a private women's college on giving per living graduate by year (Grant and Lindauer 1986, p.132):³⁴

$$\ln g_{ia} = 1.231 + 0.205 R^* + 0.072 (a-22) - 0.00051 (a-22)^2,$$

where g_{ia} is donations in 1981 dollars, R^* is a dummy variable indicating reunion years (every fifth year from age 27 to 82), and a is age. To correct this equation for expected mortality, each year's fitted value for donations is multiplied by the probability of survival to the corresponding age, where separate mortality figures are employed for men and women. The resulting age-giving profile rises to a peak around age 70 before falling, and it features spikes at five-year intervals corresponding with reunion years.

The calculation of an individual's putative lifetime alumni giving follows a four-step procedure. In the first step, the equation and mortality tables described above are used to produce hypothetical values of giving in each year, stated in 1997 constant dollars, the present value, at age 22, of each year's quantity is calculated, and each of these present values is stated as a proportion of lifetime present value: (P_{22}, \dots, P_{80}) , where

Steps two through four are applied separately to each individual in the sample. For each individual I , we have observations on giving for years a_1 to a_2 , denoted $g_{ia_1} \dots g_{ia_2}$. In step two, the present value of this giving, calculated at age 22 in 1997 dollars, is calculated as G_i . Step three calculates the portion of lifetime giving for those same years in the standard age-giving profile: $P_i = P_{a_1} + \dots + P_{a_2}$. In step four, an estimate of lifetime present value is calculated as:

$$G_i^L = G_i / P_i.$$

For example, if the standard age-giving profile implies that the years 57 to 62 normally yield 15 percent of lifetime donations, an individual who contributes \$1,500 during those years (in present value) is assumed to contribute, in present value, \$10,000 over his or her lifetime.

I begin by estimating a lifetime age-giving profile, beginning at the presumed age of graduation, 22, and ending, for neatness' sake, at age 80.

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Table 1

A Demographic Profile of Two Cohorts

	Cohort	
	1951	1976
Entered college in fall of:	1951	1976
Normal year of graduation:	1955	1980
Recent reunion years:		
1985	30th	5th
1990	35th	10th
1995	40th	15th
Assumed age in 1995 (a):	62	37
Percentage of 22 year-old males who reach that age (b)	79.4	97.0
Percentage of potential alumni (c) who are:		
Younger	78.0	33.8
Same age	1.1	2.5
Older	20.9	63.7

(a)Based on assumption of entering college at age 18.

(b)Calculated from *Statistical Abstract of the United States, 1996*, Table 122, p. 90.

(c)Approximated; based on the 22-and-over U.S. population in 1995 from *Statistical Abstract of the United States, 1996*, Table 22, pp. 22-23.

Table 2
 Three Cohorts: A Comparison of
 Means/Percentages, Weighted by 1976 Enrollment Shares

	1951	1976	1989
Social and economic characteristics (%)			
Male	72	52	48
White	98	89	78
Public high school	64	67	63
Father a college graduate	52	74	76
Mother a college graduate	32	52	61
Academic preparation (mean)			
High school percentile rank	77	91	94
SAT-- combined	1140	1269	1289
State of residence when applied (%)			
Same state as institution	47	34	26
Bordering state	24	31	27

Note: observations are weighted so as to give each institution its proportionate share of weight in 1976. For each measure, figures cover only institutions with data for all three cohorts.

Source: UNIV/Patterns/m29a.LS5 .

Table 3

Giving by Category, 1995

Cohort	Percent who contributed in 1995		Average giving by category for those who gave	
	1951	1976	1951	1976
Athletics		3.8 2.1	462	1,026
Financial aid		2.7 1.5	1,485	1,128
Other restricted		6.0 8.0	5,772	1,303
Unrestricted		46.9 25.8	753	289
 Total		 49.9 31.7	 1,506	 681
 N		 2,910 7,995	 2,910	 7,995

Source: College and Beyond survey; author's calculations.

Table 4

Comparative Measures of Alumni Giving to Selected Private Institutions

	Percentage of alumni who contributed (%)	Average giving for alumni who contributed (\$)
Published institutional data, all alumni, 1995 (a)		
Five private liberal arts colleges	41	834
Eight private universities	31	1,267
College and Beyond sample, 1995 (b)		
Five private liberal arts colleges		
1951 cohort	59	978
1976 cohort	42	297
Nine private universities		
1951 cohort	46	1,835
1976 cohort	29	826

Sources:

(a) Morgan (1995) and author's calculations. Averages are weighted. Data for one university in the sample were not published.

(b) College and Beyond survey; author's calculations.

Table 5

Present Value of Putative Lifetime Giving, by Cohort

Present value of putative lifetime contributions (1997 \$), age 22	-----1951 Cohort -----		-----1976 Cohort -----	
	Number	Percent	Number	Percent
\$0	860	29.6	3,860	41.5
\$1 - 1,000	794	27.3	4,269	45.9
\$1,001 - 5,000	698	24.0	937	10.1
\$5,001 - 10,000	198	6.8	137	1.5
\$10,001 - 20,000	151	5.2	53	0.6
\$20,001 - 50,000	119	4.1	33	0.4
over \$50,000	90	3.1	15	0.2
Total	2,910	100.0	9,304	100.0
Mean	9,074		1,398	

Table 6

Constancy of Giving, 1991-1995

Cohort	1951	1976
Percentage who contributed in:		
All 5 years	27.5	12.6
4 years	12.7	9.3
3 years	8.0	7.6
2 years	6.7	8.5
1 year	7.7	11.1
No years	37.5	51.0
Total	100.0	100.0
N	2,910	7,995

Source: College and Beyond survey; author's calculations.

Table 7

Giving by Year, Combined Sample

Year	-----Percent giving-----		Average giving, donors	
	Cohort 1951	1976	1951	1976
1991	44.7	30.0	1,577	197
1992	46.6	29.6	1,070	247
1993	45.0	28.8	888	779
1994	46.9	30.8	971	375
1995	49.9	31.7	1,506	681

Note: Based on 2,910 alumni in the 1951 cohort and 7,995 in the 1976 cohort.

Source: College and Beyond survey; author's calculations.

Table 8

Concentration of Giving, 1991-1995

Cohort	Percentage of cohort's total giving	
	1951	1976
Alumni ranked by giving		
Lowest 20%	0.0	0.0
Second 20%	0.0	0.0
Third 20%	1.1	0.4
Fourth 20%	4.4	4.2
Next 15%	16.8	13.4
Next 4%	26.1	16.1
Highest 1%	51.6	65.8
All	100.0	100.0

Source: College and Beyond survey; author's calculations.

Table 9

1991-1995 Alumni Giving, by Selected Characteristics of Donors

Category	Type	N 1951	N 1976	Percent who gave 1951	Percent who gave 1976	Mean giving for those who gave 1951	Mean giving for those who gave 1976
All		2,910	9,304	62.5	48.0	899	270
Gender	Male	2,298	4,943	61.2	47.7	1,036	397
	Female	612	4,361	67.3	48.3	432	126
Household income	150+	865	2,418	73.8	61.8	1,866	649
	75 under 150	987	3,245	61.7	50.5	342	91
	30 under 75	716	2,667	53.8	37.9	451	57
	under 30	172	584	47.1	25.9	96	34
	Unspecified	170	390	62.4	42.8	513	125
Political philosophy	Conservative	1,622	4,182	62.1	50.0	1,132	242
	Liberal	548	2,423	65.7	44.6	398	154
	Moderate	693	2,554	62.1	48.6	804	417
	Unspecified	47	145	46.8	35.9	310	252
Legacy status	Yes	398	1,119	65.3	51.7	1,063	355
	No	2,512	8,185	62.1	47.5	872	257
Extracurricular activity	Leader or participant	150	140	78.0	67.1	1,290	1,328
	Non-leading participant	223	324	54.7	49.4	803	118
	Non-participant	2,537	8,840	62.3	47.6	877	252
Someone took an interest?	Yes	1,434	4,530	65.6	51.0	1,110	332
	No	1,451	4,741	59.6	45.2	680	200
	Unspecified	25	33	52.0	30.3	164	628
Whether graduated from institution	Yes	2,502	8,064	66.7	53.8	961	275
	No	408	1,240	37.0	10.5	216	72
High school type	Public	1,450	6,198	63.4	48.8	1,097	246
	Private	1,101	2,019	64.0	48.6	784	420
	Other	102	671	62.8	44.1	605	105
	Unspecified	257	416	51.0	38.2	271	99
Person's combined SAT Score	>1299	311	3,269	59.2	52.0	675	434

		1200-1299	438	2,116	64.6		51.0	1,012	228
		1199-1100	476	1,716	66.8		46.7	1,437	129
		1000-1099	320	1,055	60.3		43.2	710	123
		<1000	219	666	69.0		39.3	864	140
		Unspecified	1,146	482	60.2		34.7	724	143
Was institution person's first choice?		Yes	2,297	6,185	64.6		52.7	921	268
		No	528	2,968	54.0		38.5	603	274
		Unspecified	85	151	58.8		41.1	1,946	262
Received honors/Phi Beta Kappa		Yes	636	2,878	69.7		60.4	866	401
		No	2,156	6,239	62.1		43.2	932	187
		Unspecified	118	187	32.2		14.4	117	42
Overall satisfaction with institution	Very		2,128	5,999	66.7	55.5		1,012	323
		Somewhat	555	2,444	55.3		39.1	538	106
		Other	206	828	40.8		20.1	387	129
		Unspecified	21	33	38.1		36.4	64	521
Dissatisfied with research or teaching	Yes		1,323	4,274	56.7		39.4	686	205
	No		1,543	4,958	67.7	55.5		1,060	309
		Unspecified	44	72	56.8		38.9	563	297
Dissatisfied with other aspects	Yes		1,975	6,768	59.3		43.4	716	270
	No		895	2,466	69.8		60.9	1,259	269
		Unspecified	40	70	55.0		40.0	401	297
Liberal arts college	Yes		952	1,673	72.8		61.2	952	162
	No		1,958	7,631	57.5		45.1	866	302
Institution's tuition	High		900	3,305	54.1		42.1	494	354
	Medium	1,168	2,903	74.1	48.0			1,157	169
	Low		842	3,096	55.3		54.3	842	283
Selectivity of institution	High		2,961	.	54.2	.	355		
	Medium	5,712	.	45.0	.	233			
	Low		631	.	46.1	.	124		

Table 10

Average Alumni Donations, 1991-1995, by Cohort, Income, and Satisfaction
with Undergraduate Experience

	-----Household income-----					
	Under \$30,000	\$30,000 under \$75,000	\$75,000 under \$150,000	\$150,000 and above	Not given	ALL
1951 cohort						
SATIS = 1	123	543	397	2,032	528	1,012
SATIS = 0	24	200	144	1,233	437	506
No answer	2	---	114	42	---	64
All	96	451	342	1,866	513	899
1976 cohort						
SATIS = 1	32	61	103	743	151	323
SATIS = 0	37	46	57	268	58	109
No answer	11	31	19	1,220	11	521
All	34	57	91	649	125	270

Note: In answer to the question, "Overall, how satisfied have you been with the education you received at the school at which you first enrolled?" SATIS = 1 refers to those who answered "very satisfied" and SATIS = 0 to all other answers. See Appendix A.

Table 11

Characteristics of Big Givers: Mean Values for Selected Variables,
Top 1% and Full Sample, by Cohort

	-----1951-----		-----1976-----	
	Top 1% of donors	Full sample of donors	Top 1% of donors	Full sample
SAT-combined	1188	1160	1273	1230
College cumulative GPA	2.38	2.53	3.20	2.99
Percentages:				
Someone took an interest (MENTOR)	74	49	59	49
Participated in extracurricular activities (a)	15	13	6	5
Participated in intercolleageate athletics	26	17	29	12
--Post-graduate volunteer activity-----				
Leader 1994/95, any volunteer activity	82	47	65	44
Other past or present participant	18	51	33	52
Leader 1994/95, alumni activities	35	8	31	4
Other past or present alumni partic.	61	41	51	28
---Personal characteristics -----				
Married	91	85	88	80
White	100	86	95	82
Male	94	75	70	53
Household income \$100,000 or more	97	49	97	46
----Attitudes-----				
Economic conservative	79	56	64	46
Social conservative	29	31	19	20
Very satisfied with life	74	57	74	43
Satisfied with undergraduate education	100	93	97	91
Dissatisfied w/ research or teaching	13	19	22	24
Dissatisfied w/ other aspects	24	46	61	53

Source: College and Beyond survey; author's calculations.

(a) In addition to activities such as publications, government, and cheerleading, also includes resident advisor, ROTC, and volunteering.

Note: means are unweighted. Hypothesis that means are equal between top 1 percent and full sample is rejected for each variable, for both cohorts.

Table 12

Logistic Regressions Explaining Overall Satisfaction with Institution Attended

Cohort	1951			1951			1976			1976		
	Equation	1		2			3			4		
Institutional fixed effect s?	Yes			No			Yes			No		
Variable	Estimated coefficient	Standard error	Odds ratio	Estimated coefficient	Standard error	Odds ratio	Estimated coefficient	Standard error	Odds ratio	Estimated coefficient	Standard error	Odds ratio
INTERCEPT	-0.94	0.53	.	-1.55	0.39	.	-1.55	0.26	.	-2.82	0.27	.
SEL-1								0.39		1.21	0.14	3.35
SEL-2								0.44		0.92	0.13	2.51
COLLEGE				0.10	0.14	1.10			0.82	0.36	0.08	1.43
FIRST	0.56	0.13	1.75	0.53	0.13	1.71	0.41	0.06	1.50	0.41	0.06	1.51
NOFIRST	0.47	0.29	1.60	0.50	0.29	1.64	-0.25	0.21	0.91	-0.24	0.21	0.79
NONWHITE	0.34	0.54	1.41	0.40	0.54	1.49	-0.05	0.09	0.98	-0.05	0.09	0.95
FEMALE	0.21	0.25	1.23	0.28	0.16	1.33	0.01	0.06	1.01	-0.02	0.06	0.98
MARRIED	-0.20	0.15	0.82	-0.21	0.15	0.81	-0.20	0.08	0.78	-0.21	0.08	0.81
NUMKIDS	-0.02	0.03	0.99	-0.01	0.03	0.99	0.05	0.02	1.06	0.06	0.02	1.06
PUBLICHS	0.31	0.11	1.36	0.34	0.11	1.40	0.14	0.06	1.14	0.19	0.06	1.20
NOHS	-0.05	0.35	0.95	-0.06	0.35	0.94	0.48	0.26	1.34	0.58	0.16	1.79
PBKHON	0.36	0.14	1.44	0.36	0.13	1.44	0.55	0.06	1.73	0.55	0.06	1.73
NOPBK	-0.06	0.31	0.94	0.01	0.29	1.01	-0.65	0.24	0.51	-0.73	0.23	0.48
ATHLETE	0.27	0.14	1.31	0.24	0.13	1.27	0.02	0.09	1.04	0.03	0.09	1.03
MENTOR	0.82	0.10	2.26	0.82	0.10	2.26	0.70	0.05	2.01	0.70	0.05	2.02
GRAD	0.45	0.20	1.57	0.42	0.19	1.52	0.49	0.14	1.61	0.47	0.13	1.59
EXTRAPAR	-0.01	0.15	0.99	-0.03	0.15	0.97	0.14	0.12	1.15	0.14	0.12	1.15
HH4	0.34	0.37	1.41	0.32	0.37	1.37	0.29	0.19	1.47	0.28	0.19	1.32
HH5	0.76	0.33	2.14	0.75	0.33	2.12	0.36	0.17	1.55	0.35	0.17	1.43
HH6	0.51	0.32	1.66	0.51	0.32	1.67	0.44	0.16	1.73	0.44	0.16	1.56
HH7	0.77	0.33	2.16	0.77	0.32	2.16	0.56	0.17	1.91	0.56	0.17	1.76
HH8	0.68	0.33	1.97	0.70	0.32	2.01	0.57	0.17	2.02	0.57	0.17	1.77

HH9	0.71	0.33	2.03	0.69	0.33	1.99	0.83	0.18	2.51	0.82	0.18	2.27
HH10	0.79	0.34	2.19	0.82	0.33	2.27	0.93	0.18	2.80	0.94	0.17	2.57
NOINCDAT	0.95	0.37	2.60	0.96	0.37	2.60	0.36	0.20	1.58	0.36	0.20	1.43
LIFESAT	0.76	0.15	2.14	0.76	0.15	2.14	0.57	0.08	1.73	0.57	0.08	1.76
NOLIFSAT	0.08	0.69	1.08	0.13	0.68	1.14	0.92	0.47	2.27	0.92	0.47	2.51
INSTATE	-0.12	0.13	0.89	-0.08	0.13	0.93	-0.01	0.07	0.98	-0.01	0.07	0.99
BORDER	-0.12	0.12	0.88	-0.11	0.12	0.90	-0.02	0.07	0.96	-0.07	0.07	0.94
REGION	-0.12	0.38	0.89	-0.08	0.37	0.93	0.19	0.12	1.23	0.25	0.12	1.28
NOSTATE	-0.06	0.51	0.94	-0.16	0.49	0.86	-0.01	0.15	0.97	-0.21	0.09	0.81
SAMESCH	0.52	0.25	1.68	0.48	0.24	1.61	0.08	0.12	1.12	0.07	0.12	1.07
LAW	0.20	0.17	1.22	0.19	0.17	1.21	0.61	0.08	1.88	0.61	0.08	1.84
MD	0.49	0.20	1.63	0.50	0.20	1.64	0.49	0.10	1.59	0.49	0.10	1.64
MBA	0.04	0.17	1.04	0.02	0.16	1.02	0.24	0.08	1.27	0.24	0.08	1.27
PHD	-0.21	0.17	0.81	-0.22	0.17	0.80	0.21	0.11	1.23	0.22	0.10	1.24
OTHGRAD	-0.21	0.13	0.81	-0.20	0.13	0.82	0.11	0.06	1.14	0.12	0.06	1.12
TOP10	0.13	0.13	1.14	0.10	0.12	1.11	-0.08	0.10	0.91	-0.17	0.09	0.85
RANKNA	-0.08	0.16	0.93	0.10	0.13	1.11	-0.23	0.11	0.82	-0.01	0.07	0.99
MAJOR_S	-0.15	0.13	0.86	-0.14	0.13	0.87	0.10	0.07	1.10	0.10	0.07	1.10
MAJOR_N	-0.12	0.17	0.89	-0.10	0.16	0.90	0.16	0.09	1.21	0.17	0.09	1.18
MAJOR_E	-0.37	0.17	0.69	-0.32	0.16	0.73	0.07	0.10	1.08	0.08	0.10	1.08
MAJOR_O	-0.16	0.21	0.85	-0.09	0.21	0.92	0.20	0.09	1.23	0.20	0.09	1.22
MAJOR_NA	0.07	0.25	1.07	-0.07	0.21	0.93	0.17	0.16	1.18	0.14	0.16	1.15
SAT1							-0.19	0.12	0.81	-0.18	0.12	0.84
SAT2							-0.12	0.12	0.85	-0.11	0.11	0.90
SAT3							0.01	0.11	0.99	0.02	0.11	1.02
SAT4							0.11	0.12	1.07	0.10	0.12	1.11
SATNA							-0.29	0.16	0.72	-0.30	0.15	0.74

-2 log likelihood:

Restricted	2,976	2,976	10,644	10,644
Unrestricted	2,720	2,727	9,510	9,535
Chi-square	256	249	1,134	1,109

Degrees of freedom 50

42

59

49

Note: The numbers of observations was 2,591 for the 1951 cohort and 8,257 for the 1976 cohort.

Source: College and Beyond; authors's calculations.

Table 13

Tobit Regressions Explaining Alumni Giving

Equation	1		2		3		4		5		6	
Cohort	1951		1951		1951		1976		1976		1976	
Institutional fixed effects?	Yes		No		Yes		Yes		No		Yes	
Variable	Est. coeff.	SE	Est. coeff.	SE	Est. coeff.	SE	Est. coeff.	SE	Est. coeff.	SE	Est. coeff.	SE
Intercept	-1.14	0.82	-2.98	0.73	-1.61	0.82	-2.98	0.48	-4.07	0.51	-3.61	0.47
SEL-1								0.50	0.21			
SEL-2								-0.47	0.21			
COLLEGE			1.22	0.20					1.46	0.12		
FIRST	0.15	0.21	0.10	0.22	0.24	0.21	0.17	0.09	0.09	0.10	0.31	0.10
NOFIRST	0.56	0.45	0.90	0.47	0.41	0.45	0.63	0.35	0.60	0.36	0.41	0.35
NONWHITE	0.20	0.70	0.26	0.72	0.35	0.72	-0.89	0.14	-1.07	0.15	-0.89	0.15
FEMALE	0.81	0.36	0.39	0.23	0.88	0.37	-0.16	0.09	-0.11	0.09	-0.16	0.10
MARRIED	-0.31	0.22	-0.53	0.22	-0.32	0.22	-0.72	0.12	-0.81	0.13	-0.73	0.13
NUMKIDS	-0.12	0.05	-0.13	0.05	-0.13	0.05	-0.05	0.04	-0.03	0.04	-0.02	0.04
PUBLICHS	0.04	0.15	0.08	0.15	0.14	0.15	0.14	0.09	0.27	0.09	0.19	0.09
NOHS	-0.32	0.54	-0.33	0.56	-0.36	0.55	-1.22	0.40	-0.53	0.27	-1.11	0.41
PBKHON	-0.04	0.18	-0.20	0.18	0.04	0.18	0.37	0.09	0.27	0.09	0.42	0.09
NOPBK	0.11	0.54	-0.31	0.54	0.15	0.55	0.27	0.48	0.13	0.49	0.16	0.49
ATHLETE	0.65	0.20	0.35	0.20	0.75	0.20	0.45	0.14	0.32	0.14	0.50	0.14
MENTOR	0.25	0.15	0.21	0.15	0.54	0.14	-0.03	0.08	-0.03	0.08	0.20	0.08
GRAD 1.73	0.32	2.02	0.31	1.95	0.32	2.74	0.27	2.71	0.28	3.04	0.27	
EXTRAPAR	0.84	0.22	0.13	0.21	0.83	0.22	0.32	0.18	0.20	0.18	0.33	0.18
DISSATA	-0.27	0.21	-0.36	0.22			-0.36	0.11	-0.27	0.11		

NODISA	-1.18	0.23	-1.19	0.24			-0.96	0.16	-0.90	0.17		
DISSATB	-0.36	0.15	-0.42	0.16			-0.50	0.09	-0.59	0.09		
NODISB	-0.21	0.32	-0.19	0.33			-1.07	0.21	-1.18	0.22		
SATIS 0.86	0.17	0.86	0.18			0.74	0.09	0.83	0.10			
NOSATIS	0.00	0.92	-0.30	0.95			0.97	0.75	0.40	0.77		
WORK	-0.12	0.18	-0.09	0.19	-0.08	0.19	-0.40	0.16	-0.40	0.16	-0.44	0.16
WORKNA	-0.15	0.62	-0.38	0.64	0.03	0.64	0.06	0.34	1.98	0.20	0.01	0.34
SELFEMPL	-0.42	0.20	-0.34	0.20	-0.49	0.20	-0.14	0.12	-0.14	0.12	-0.17	0.12
GOVNP	-0.02	0.18	0.04	0.18	-0.04	0.18	-0.17	0.11	-0.18	0.11	-0.19	0.11
NOEMPL	-0.25	0.58	0.01	0.60	-0.43	0.59	-0.28	0.28	-1.80	0.18	-0.23	0.28
HH4	1.65	0.65	1.60	0.67	1.89	0.66	0.47	0.38	0.33	0.39	0.61	0.38
HH5	1.64	0.58	1.56	0.60	1.86	0.59	1.08	0.32	1.13	0.33	1.26	0.33
HH6	2.30	0.57	2.10	0.58	2.56	0.58	1.60	0.31	1.68	0.32	1.86	0.32
HH7	2.54	0.57	2.28	0.58	2.79	0.58	2.37	0.32	2.48	0.32	2.64	0.32
HH8	3.07	0.57	3.09	0.58	3.36	0.58	2.42	0.32	2.57	0.33	2.70	0.32
HH9	4.03	0.57	3.73	0.59	4.28	0.58	3.28	0.33	3.19	0.33	3.61	0.33
HH10	4.84	0.58	5.16	0.59	5.13	0.59	3.78	0.33	4.07	0.33	4.10	0.33
NOINCDAT	3.07	0.62	2.83	0.63	3.27	0.63	2.30	0.36	2.44	0.37	2.45	0.37
LIFESAT			0.61	0.26			0.15	0.14	0.14	0.14		
NOLIFSAT			-0.10	1.13			0.17	0.73	0.06	0.75		
INSTATE	0.19	0.19	0.32	0.18	0.21	0.20	-0.01	0.11	-0.02	0.11	-0.03	0.11
BORDER	-0.18	0.17	-0.20	0.18	-0.16	0.17	-0.05	0.11	-0.18	0.11	-0.09	0.11
REGION	-0.08	0.53	-0.78	0.53	0.00	0.55	-0.12	0.19	-0.07	0.19	-0.09	0.19
NOSTATE	-0.79	0.80	-0.25	0.82	-0.72	0.81	-0.20	0.25	0.10	0.16	-0.27	0.26
SAMESCH	0.63	0.31	0.92	0.32	0.74	0.32	1.15	0.17	1.43	0.18	1.19	0.18
LAW	0.46	0.23	0.48	0.24	0.55	0.24	0.19	0.12	0.18	0.13	0.23	0.12
MD	-0.10	0.26	-0.06	0.27	0.08	0.27	0.01	0.15	0.04	0.16	0.15	0.15
MBA	0.64	0.24	0.59	0.25	0.81	0.25	0.44	0.12	0.40	0.12	0.54	0.12
PHD	-0.12	0.25	-0.06	0.26	-0.15	0.25	-0.16	0.16	-0.17	0.16	-0.10	0.16
OTHGRAD	-0.18	0.19	-0.05	0.20	-0.11	0.19	-0.07	0.10	-0.05	0.11	-0.01	0.11
MAJOR_S	-0.28	0.19	-0.40	0.20	-0.32	0.19	-0.03	0.11	-0.05	0.12	0.02	0.12

MAJOR_N	0.05	0.23	-0.13	0.24	0.03	0.24	-0.05	0.14	0.01	0.14	0.01	0.14
MAJOR_E	0.37	0.25	0.51	0.26	0.27	0.26	0.12	0.16	0.18	0.16	0.15	0.16
MAJOR_O	0.57	0.30	0.96	0.30	0.61	0.31	0.01	0.14	0.19	0.14	0.03	0.14
MAJOR_NA	-1.04	0.42	-1.19	0.35	-1.04	0.43	-0.60	0.32	-0.79	0.33	-0.60	0.33
Scale parameter		3.26		3.40		3.34		3.17		3.27		3.29
Log likelihood-5092			-5204		-5138		-13187		-13417		-13341	

Note: Dependent variable is logarithm of mean giving, 1991-95, if positive; 0 otherwise."

Figures in bold are significant at the 1% level.

Sample size: 2,610 for 1951 cohort and 8,285 for 1976 cohort. Proportion of nonzero observations: 0.64 for 1951 and 0.50 for 1976.

Table 14

Regressions for Giving over Time

(Dependent variable: change in log(giving + \$10))

Cohort	1951	1976
Variable		
Intercept	-0.002 <i>0.009</i>	0.009 <i>0.004</i>
Change in stock prices	0.382 <i>0.081</i>	0.367 <i>0.031</i>
Change in price	0.229 <i>0.150</i>	-0.048 <i>0.053</i>
Change in REUNION	0.189 <i>0.012</i>	0.003 <i>0.005</i>
Adjusted R-square	0.008	0.002
N	28,460	96,521

Note: Figures in bold are significant at 1% level.

Table A1

Summary Statistics for Regression Variables

Variable Label		1951 Cohort		1976 Cohort	
		Mean	Std Dev	Mean	Std Dev
MEAN5YR	5-Year average giving	561.88	3888.46	129.33	2975.79
LOGMEAN	Log (MEAN5YR + 10)	3.988	1.799	3.180	1.224
GIVEIN5	1 if gave during 1991-95	0.625	0.484	0.480	0.500
GIVEALL5	1 if gave every year 1991-1995	0.275	0.446	0.108	0.311
FIRST	School was first choice	0.789	0.408	0.665	0.472
NOFIRST	Missing first choice data	0.029	0.168	0.016	0.126
FEMALE	Female	0.210	0.408	0.469	0.499
MARRIED	Married or in similar relationship	0.857	0.350	0.804	0.397
NUMKIDS	Number of children	2.971	1.593	1.456	1.277
DADSED	Father at least college grad	0.581	0.494	0.687	0.464
PUBLICHS	Public high school		0.498	0.500	0.666
NOHS	Missing school data		0.088	0.284	0.045
PBKHON	Phi Beta Kappa or honors		0.219	0.413	0.309
NOPBK	Phi Beta Kappa/honors data	0.041	0.197	0.020	0.140
ATHLETE	Athletic award		0.184	0.387	0.101
MENTOR	Someone took an interest		0.493	0.500	0.487
GRAD	Graduated from institution	0.862	0.345	0.875	0.331
EXTRAPAR	Participated in extracurricular activity		0.128	0.334	0.050
DISSATA	Dissatisfied w/research or teaching		0.146	0.354	0.195
NODISA	Missing dissat. w/research or teaching data		0.231	0.422	0.186
DISSATB	Dissatisfied w/other areas		0.406	0.491	0.472
NODISB	Missing dissat. w/other areas data		0.118	0.323	0.117
SATIS	Very satisfied overall w/undergrad ed.		0.731	0.443	0.645
NOSATIS	Missing data on overall satisfaction	0.007	0.085	0.004	0.059
ATTEND	Would likely attend again		0.635	0.482	0.582
KNOW	Knowledgeable of institution		0.813	0.390	0.808
SELFEMPL	Self-employed		0.202	0.401	0.151
GOVNP	Government or non-profit employer	0.318	0.466	0.273	0.445
NOEMPL	Missing employer data		0.110	0.313	0.106
WORK	Currently working for pay	0.699	0.459	0.709	0.454
WORKNA	Missing current work data		0.100	0.300	0.213
HH1	Household income less than \$1,000	0.004	0.067	0.004	0.062
HH2	Household income \$1,000 to \$9,999		0.006	0.076	0.006
HH3	Household income \$10,000 to \$19,999		0.012	0.111	0.018
HH4	Household income \$20,000 to \$29,999		0.036	0.187	0.035
HH5	Household income \$30,000 to \$49,999		0.096	0.294	0.112
HH6	Household income \$50,000 to \$74,999		0.150	0.357	0.175
HH7	Household income \$75,000 to \$99,999		0.160	0.366	0.169
HH8	Household income \$100,000 to \$149,999		0.179	0.384	0.180
HH9	Household income \$150,000 to \$199,999		0.148	0.355	0.107
HH10	Household income \$200,000 or more		0.149	0.356	0.153
NOINCDAT	Missing Household income data		0.058	0.235	0.042
LIFESAT	Very satisfied with life		0.904	0.295	0.885
NOLIFSAT	Missing life satisfaction data		0.008	0.090	0.004

FA	Need-based financial aid recipient		0.314	0.464		0.307	0.461
LEG	Legacy		0.201	0.401		0.108	0.310
NOLEG	Missing legacy data	0.005	0.069		0.212	0.409	
NONWHITE	Nonwhite		0.095	0.294		0.180	0.384
INSTATE	Institution in home state		0.341	0.474		0.239	0.427
BORDER	Institution in border state		0.277	0.448		0.215	0.411
REGION	Institution in same region		0.018	0.134		0.050	0.218
NOSTATE	Missing state data		0.013	0.112		0.100	0.300
SAMESCH	Graduate degree from same institution		0.065	0.247		0.055	0.228
LAW	Received law degree		0.110	0.313		0.140	0.347
MD	Received MD		0.098	0.297		0.103	0.304
MBA	Received MBA		0.090	0.287		0.134	0.341
PHD	Received PhD		0.104	0.306		0.077	0.266
OTHGRAD	Received other graduate degree		0.234	0.423		0.233	0.423
SAT1	SAT > 1299 (1976 only)		0.351	0.477			
SAT2	SAT 1200-1299 (1976 only)		0.227	0.419			
SAT3	SAT 1100-1199 (1976 only)		0.184	0.388			
SAT4	SAT 1000-1099 (1976 only)		0.113	0.317			
SATNA	Missing SAT data (1976 only)		0.052	0.222			
TOP10	Top 10% of high school class		0.275	0.447		0.165	0.371
RANKNA	Missing high school rank data		0.339	0.474		0.610	0.488
MAJOR_S	College major social science		0.189	0.392		0.243	0.429
MAJOR_N	College major natural science		0.121	0.326		0.173	0.378
MAJOR_E	College major engineering	0.122	0.327		0.105	0.306	
MAJOR_O	College major other		0.085	0.279		0.152	0.359
MAJOR_NA	Missing college major data		0.103	0.304		0.101	0.302
SEL1	High selectivity (1976 only)					0.318	0.466
SEL2	Medium selectivity (1976 only)					0.614	0.487
SEL3	Low selectivity (1976 only)					0.068	0.251
COLLEGE	Liberal arts college		0.327	0.469		0.180	0.384
TUIT51_1	1951 tuition \$700+		0.309	0.462			
TUIT51_2	1951 tuition \$550-699		0.401	0.490			
TUIT51_3	1951 tuition LT \$550		0.289	0.454			
TUIT76_1	1976 tuition \$4200+					0.355	0.479
TUIT76_2	1976 tuition \$3600-4199					0.312	0.463
TUIT76_3	1976 tuition LT \$3600					0.333	0.471
VOL9495	Volun in non-alum activities 94-95		0.764	0.425		0.874	0.332
ALUM9495	Volun in alum activities 94-95		0.204	0.403		0.185	0.388
PASTPART	Volun in non-alum activ. pre-94 only		0.943	0.233		0.892	0.311
PASTALUM	Volun in alum activ. pre-94 only		0.417	0.493		0.256	0.436

Source: College and Beyond Survey.

NOTES

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1. For references to this literature, see, for example, Auten, Sieg, and Clotfelter (1999).
 2. Three exceptions, cited in Clotfelter (1985, Table 2.14, p. 65), cover religious organizations, educational institutions, and health and welfare organizations. See also Kingma (1989) on contributions to public radio.
 3. See, for example, Ostrower (1995) or Schervish and Havens (1997). Drawing on the same theme, economist Rose-Ackerman (1996, p. 714) notes the high proportion of contributions to organizations to which donors have close personal ties.
 4. See Bowen and Bok (1998, Appendix A) for a description of the survey.
 5. See Cook and Frank (1993).
 6. See, for example, Taylor and Martin (1995) and Okunade and Berl (1997).
 7. Grant and Lindauer (1986), Bristol (1990 and 1991-92), and Okunade and Berl (1997) offer examples of measurable age effects.
 8. See, for example, Bristol (1990) and Willemain et al. (1994).
 9. The institutions were: Columbia, Duke, Emory, Georgetown, Notre Dame, Northwestern, Princeton, Rice, Stanford, Tufts, Tulane, University of Pennsylvania, Vanderbilt, Washington University, Yale, Miami (Ohio), Michigan, Penn State, University of North Carolina at Chapel Hill, Barnard, Bryn Mawr, Smith, Wellesley, Denison, Hamilton, Kenyon, Oberlin, Swarthmore, Wesleyan, Williams, Howard, Morehouse, Spelman, and Xavier.
 10. See Bowen and Bok (1998, Appendix A) for a description of the survey and methodology employed.
 11. An important practical question that arose in using the data on alumni giving provided by institutions was how to determine whether the absence of recorded giving by an individual reflected no contributions by the individual or merely the lack of giving data. Institutions were asked to indicate for each individual whether giving data were available; conversations with those who provided and collected the data suggested that this indicator was not reliable. Instead, the assumption was made that missing data would be assumed to indicate true zero giving except in cases in which the institution provided no giving data for any donors, such as was the case for three institutions for all of the 1951 cohort and several other institutions for some years and cohorts.
 12. Calculations for each measure are based on institutions with data for all three cohorts. The values for 1976 are unweighted means calculated for all individuals in the institutions applying to each measure. The means for the other two years weight individual observations so as to give each institution the same weight as its actual share in 1976. Where N_{k76} is the number of alumni of institution k in 1976 and N_{76} is the total sample size in that year, its alumni for year t is

weighted by $(N_{k76}/N_{76})/(N_{kt}/N_t)$.

13. A similar increase and decline in the public school percentage was observed among freshmen at all private universities and private nonsectarian colleges between 1967 and 1995 (Clotfelter 1999, p. 9).

14. See Bowen and Bok (1998, Figure 2.6, p. 30) for a similar comparison of average SAT scores at four institutions for the three cohorts.

15. See Hoxby (1997) for a discussion of the growing national nature of the higher education market.

16. Although it would be impossible to establish a dollar value for the debt that any of us feels we owe an institution, one candidate is the subsidy received by a student from attendance, which Winston calculates as the difference between the average cost of the education and net tuition (sticker price tuition minus any financial aid). In 199x, the average subsidy for students in the private colleges and universities in the College and Beyond sample was about \$19,500 a year, being the difference between average costs of \$30,000 and net tuition of \$10,500.

17. Calculations were based on published figures in *Lovejoy's* (1952) and Cass and Birnbaum (1977). In current dollars the corresponding figures are \$543 and \$3,786. The latter included fees and thus is not precisely comparable to that for 1951.

18. Willemain et al. (1994, p. 623) present a similar finding in their study of Princeton alumni giving.

19. Schervich and Havens (1997), for example, refer to the "social networks of invitation and obligation." They argue that donors' identification with organizations is more important than generosity per se.

20. For the relationship between giving and volunteering, see, for example, Hodgkinson and Weitzman (1996, p.37). In 1996, 76 percent of those who were members of organizations made gifts in 1995, compared to 37 percent among those who were not (p. 94). Similarly, those who were active in religious organizations were more likely to give (79 vs. 57 percent) (p. 88), and those who were more active gave more on average (p.93).

Furthermore, research on contributions by the wealthy suggests that personal connections to donee organizations are especially important for at least that group of donors. Ostrower (1996, p. 36) argues that donee organizations provide for the wealthy a sense of community of the same sort that religious congregations do for a much larger share of the population: "Nonprofit organizations are the focal points around which upper-class life revolves."

21. See, for comparison, similar regressions explaining satisfaction for the 1976 cohort presented by Bowen and Bok (1998, Table D.7.2).

22. The odds ratio, equal to e^b , where b is the estimated coefficient, summarizes the effect of dichotomous explanatory variables by giving the ratio of the odds with as opposed to without the condition underlying the dummy variable. The coefficient 0.58 for FIRST implies, for example, that the odds of being satisfied are 79 percent higher for those for whom the institution was their first choice than for whom it was not. The odds are $p/(1-p)$ where p is the probability of being very satisfied (SATIS=1).

23. The derivative of the expected value of the log of giving with respect to this dummy variable in equation (1) is $(1.73)(0.64) = 1.11$. $\text{Exp}(1.11) = 3.03$. In equation (4) it is $(2.74)(0.50) = 1.37$. $\text{Exp}(1.37) = 3.94$.

24. Between the two classes, the ratio of midpoint income is 2.59. For the 1951 cohort the ratio of estimated giving in equation (1) is $\exp(0.64(4.03-2.30)) = 3.03$. In equation (4) it is $\exp(0.50(3.28-1.60)) = 2.32$. The latter implies an elasticity of roughly $1.32/1.59 = 0.83$.

25. Derivatives of the expected value of the log of mean giving with respect to the college dummy were $(1.22)(0.69) = 0.78$ and $(1.46)(0.50) = 0.73$, implying multiplicative effects of 2.2 and 2.1, respectively.

26. Following the procedure used elsewhere, an additional dummy variable was added to indicate alumni of institutions that did not provide data on legacy status.

27. For a discussion of the rising importance of loan finance in the 1970s, see Clotfelter et al. (1991, pp. 98-105).

28. The Tobit coefficient for financial aid and legacy status in the 1976 cohort sample were -0.382 and 0.622. Given that 68.8 percent of the 1,962 observations had positive average giving, the implied derivatives are $\exp((-0.382)(0.688))$ and $\exp((0.622)(0.688))$, respectively.

29. However, one study of alumni giving (Bristol 1991-92) does examine the association between stock market performance and donations.

30. See, for example, Feenberg (1987) or Auten, Sieg, and Clotfelter (1999).

31. Taxable income corresponding to each income category in each year was approximated by multiplying the midpoint for the income class corresponding to 1995 income (or the average Adjusted Gross Income (AGI) for the top class obtained from tax return data) by the ratio of taxable income to AGI corresponding to that income level in 1995. These taxable income figures were multiplied by the ratio of nominal per capita disposable income for each year before and after 1995 to obtain estimates of taxable income by income class for all other years. See Cruciano (1997, pp. 22, 30) and U.S. Bureau of the Census (1998, p. 317). These estimates were applied to tax rate schedules for single and joint returns. The resulting marginal tax rates were used to calculate the price of giving, as one minus the marginal tax rate, applying to each person's 1995

income category and marital status. Since there was no information on changes over time in either income or marital status, the trend in price is largely a function of changes in the tax rate schedules.

32. See, for example, Bristol (1990), Grant and Lindauer (1986), and Willemain et al. (1994).

33. One institution provided no giving data for 1995. Accordingly, observations for this institution are omitted in calculations for 1995, including Tables 3-4 and 6-8 and regressions explaining whether a person made any gift between 1991 and 1995. They are included elsewhere, with average giving based on four rather than five years.

34. Because it is based on data collected at one time on average giving by class, the estimated age-giving profile necessarily conflates age effects with any cohort effects.