CHAPTER 8
ALUMNI GIVING AT A SMALL LIBERAL ARTS COLLEGE: EVIDENCE FROM CONSISTENT AND OCCASIONAL DONORS*

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ABSTRACT

This study observed the financial giving of alumni at a small, private liberal arts college covering a 23 year period of consistent (longitudinal) and occasional donors. After observing historical characteristics of donors, college officials have a greater probability of accurately predicting future alumni gifts. Key determinants of alumni giving for both consistent and occasional donors are as follows: volunteering for the college, major in a social science division, language school attendance, residence in states with alumni chapters, and employment within the financial sector. Additionally, alumni with relatives who have attended the college, and alumni who have played a varsity sport during college, are two groups very likely to donate. Our study suggests that Alumni Offices may benefit from rating donors' giving potential (and subsequently focusing on these individuals), extensively publicizing reunions, and by targeting those who volunteered during their college years. Among occasional donors, Alumni Offices may want to target males, fraternity/sorority members, and alumni who are close to retirement. [**JEL** I2, L3]

Keywords: educational economics, educational finance, expenditures, state and federal aid

1. BACKGROUND

A number of factors have combined to compel private institutions of higher education in the U.S. to rely ever more heavily upon financial donations from their alumni. It has long been the case that government appropriations—federal, state and local—at private higher education institutions are a minimal percentage

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of total funding. Not only are contributions to total funding from these sources minimal, but they are declining**.** Consequently, private donations to private baccalaureate institutions (like the one studied here) are supplementing government shortfalls.[1] Among private donors, corporate gifts (when they are available at all) are increasingly targeted at prestigious schools that promise a significant *quid pro quo*, such as favored access to prospective employees.[2] Table 1 illustrates the increasingly important role alumni are assuming in the financial support of institutions of higher learning. Further, in an increasingly competitive educational environment, where schools compete for the best applicants, alumni donations often fund attractive extracurricular programs such as sports programs and expanded educational programs. Given the trends outlined above, it is essential that those in charge of soliciting alumni for donations better understand the common alumni characteristics which may help them predict donor potential.

[1] It is clear from Appendix A that private gifts and grants are a major source of outside funding for private baccalaureate institutions relative to public baccalaureate institutions.

[2] Some scholars have observed a recent corporate trend of giving financial gifts to fewer academic institutions in order to get something in return. Often that something in return is access to prospective employees. Accordingly, corporations are connecting with fewer and fewer academic institutions—only those programs which match their interests. Privately, some observers wonder whether small, liberal arts colleges (which neither offer the array of programs that large research institutions offer, nor the vocational training offered by two-year colleges) will be excluded from such corporate philanthropy (Mercer, 1996). Brittingham and Pezullo (1990) also provide evidence of a similar kind of 'self-interest' scenario regarding corporate giving.

Table 1.
Giving to Higher Education By type of Donor ($ in millions)

Year	Alumni		Nonalumni		Corporations		Foundations		Religion		Other		Total
	Amount	% of Total	*Amount*	% of Total	*Amount*	% of Total	*Amount*	% of Total	*Amount*	% of Total	*Amount*	% of Total	*Amount*
1979-1980	910.0	23.9	847.0	22.3	696.0	18.3	903.0	23.8	155.0	4.1	289.0	7.6	3800.0
1980-1981	1,049	24.8	1,007	23.8	778.0	18.4	922.0	21.8	170.0	3.3	334.0	7.9	4,352
1981-1982	1,240	25.5	1,097	22.6	976.0	20.1	1,003	20.6	175.0	3.6	369.0	7.6	4,952
1982-1983	1,237	24.0	1,190	23.1	1,112	21.5	1,018	19.7	208.0	4.0	397.0	7.7	5,254
1983-1984	1,305	23.3	1,316	23.5	1,271	22.7	1,081	19.3	190.0	3.4	437.0	7.8	5,692
1984-1985	1,460	23.1	1,416	22.4	1,574	24.9	1,175	18.6	208.0	3.3	487.0	7.7	6,412
1985-1986	1,825	24.7	1,781	24.1	1,702	23.0	1,363	18.4	211.0	2.8	518.0	7.0	7,493
1986-1987	2,346	27.6	2,066	24.3	1,819	21.4	1,513	17.8	204.0	2.4	552.0	6.8	8,594
1987-1988	2,042	24.9	1,927	23.5	1,853	22.6	1,601	19.6	197.0	2.4	574.0	7.0	8,287
1988-1989	2,292	25.0	2,077	23.3	1,947	21.6	1,742	19.5	257.0	2.7	632.0	7.1	9,039
1989-1990	2,540	25.7	2,230	22.7	2,170	22.1	1,920	19.6	240.0	2.4	700.0	7.1	9,893
1990-1991	2,680	26.1	2,310	22.5	2,230	21.8	2,030	19.9	240.0	2.4	710.0	6.9	10,293
1991-1992	2,840	26.4	2,500	23.3	2,260	21.1	2,090	19.5	240.0	2.2	770.0	7.1	10,792
1992-1993	2,980	26.5	2,530	22.5	2,400	21.4	2,200	19.6	250.0	2.2	840.0	7.4	11,292
1993-1994	3,410	27.5	2,800	22.6	2,510	20.3	2,540	20.6	240.0	1.9	850.0	6.8	12,443
1994-1995	3,600	28.1	2,940	23.0	2,560	20.0	2,460	19.3	250.0	2.0	940.0	7.3	12,842
1995-1996	3,510	28.5	2,920	23.7	2,370	19.3	2,400	19.6	219.0	1.8	840.0	6.8	12,352

Source: *Voluntary Support of Education*: Council for Aid to Education (various years)

Although a school may have a vast pool of alumni, not all alumni are financially generous to their alma mater for one reason or another. Thus the alumni office is faced with the task of targeting potential donors and accurately and efficiently honing its efforts[3]. This study outlines the relative importance of certain donor characteristics of both consistent and occasional gift givers for a small liberal arts college. Even though our data indicates that consistent donors give more on average, occasional donors greatly outnumber the consistent donor group; thus, it is important to understand both groups of donors. Alumni offices from comparable institutions could benefit from this research in their fundraising efforts.

2. REVIEW OF LITERATURE

Several avenues exist for modeling charitable giving. A first approach examines the economics of charity based on the theory of consumer demand for a non-durable good or service. This approach focuses on the price and income effects of voluntary charitable giving (Feldstein and Taylor, 1976) and also enables researchers to evaluate how changes in tax policy affect the level of charitable contributions. Glenday, Gupta, and Pawlak (1986) estimated the price and income elasticities of demand for charitable donations in Canada, which were used to analyze the "cost-effectiveness" of tax incentives for donations. Jones and Posnett (1991), utilized 1984 Family Expenditure Survey (FES) data to observe the determinants of charitable giving in the United Kingdom. Their work, which was the first to use UK data, presented an interesting distinction. They found separate determinants of participation and amount of giving. The probability of participation was determined to be dependent on household income, the tax-price of charitable giving, education, sex, and the head of the household's employment status. However, the donation size responded only to household income.

A second approach examines factors that affect giving based on the degree of donor involvement in higher institutions. Donor ‘involvement’ may be characterized in many ways, including: formation of attitudes based on reading alumni publications, following successful sports programs, and the impact of relatives attending an institution. For example, perceived need for financial support, reading alumni publications, and subsequent enrollment for graduate work, are cited as determinants of alumni giving (Taylor and Martin, 1995). A few recent studies examine the success of sports teams as a factor that determines alumni giving. After controlling for characteristics of incoming students, characteristics of the institution, the effort the institution makes to solicit alumni giving, and the success of the school’s football and basketball teams, Baade and

[3] Harrison, Mitchell, and Peterson (1995) also show that schools with higher development costs generate a substantially higher level of donations. Similarly, Baade and Sundberg (1996b) find that greater development efforts lead to higher alumni giving. From a recipient institution's view point, Harrison (1995) shows that fund-raising and college relations costs are crucial factors in influencing the probability of alumni giving.

Sundberg (1996a) conclude that winning records do not automatically boost alumni giving, but football bowl game appearances do result in significantly higher gift totals. Grimes and Chressanthis (1994) showed that after controlling for the population of alumni, student enrollment, state appropriations, and per capita income, the contributions were positively related to the overall winning percentage of the intercollegiate sports program. Okunade (1993) analyzed the likelihood of business school alumni giving donations to their alma mater. Using maximum-likelihood estimates, he determined that numerous variables had a strong and positive relationship with alumni giving. Some of those variables are: specific fields of major and other family members graduating from the university. Finally, Connolly and Blanchette (1986) identify discriminant analysis as the ideal technique to first, isolate *aggregate* alumni giving behavior, and then, predict individual giving. Their study determines that among young alumni, loyalty motivates giving rather than capacity to give. Further, among large gift donors, information on fellow classmates (with an eye toward reunion years) and an interest in the *potential gift-giver* activities are motivating factors for giving.

A third group of studies examines the effect of altruism (impure altruism) on charitable giving. Even though altruism theories predict that giving is purely a philanthropic and/or sympathetic motive (Kennett, 1980 ; Ribar and Wilhelm, 1995; Batson, 1990; Fultz et al., 1986), Andreoni (1989) developed a different theory. His theory of “impure” altruism states that donors receive a warm glow from giving, i.e. charitable giving satisfies one’s ego and, thus, is not purely altruistic. For example, charitable contributions could be viewed as ‘payments’ in exchange for intangible personal rewards of self esteem or group membership (Zaleski and Zech, 1992; Maude, 1997). A study by Yoo and Harrison (1989) found that by providing such ‘intangible personal rewards’ to potential contributors, a recipient institution may induce higher levels of alumni donations**.**

A final method of study considers how individual donor profiles affect alumni giving. The "age-donation" profiles of alumni in a life-cycle framework have been analyzed. Okunade, Wunnava and Walsh (1994) observed the relationship between age and giving at a large public university, using a pooled micro-data random sample. Based on a covariance regression model, they concluded that the difference between men’s and women’s giving is not statistically different. Furthermore, non-fraternity members and graduates of business school gave significantly more cash gifts, relative to the rest of the sample. Finally, after the age of 52, donations were predicted to decline. Olsen, Smith and Wunnava (1989), also analyzed the time dimension of alumni giving. Their study determined that "the growth rate of donations coincided with the age-income profile and became negative at the retirement age," which contradicts the findings of Okunade, Wunnava and Walsh (1994). Bruggink and Siddiqui (1995) modeled alumni giving based on micro-level data from a liberal arts college. The study identifies characteristics of alumni that both positively and negatively influenced alumni giving. Factors positively related to individual giving include income, age, alumni activity, being single, an engineering degree and Greek affiliation.

Unemployment and distance of current residence from college negatively influenced giving.

3. METHODOLOGY

Our study improves on previous work with a much richer sample and by investigating differences between consistent and occasional donors. As modeled by previous research, our study also considers Greek affiliation, gender, area of study, employment sector, age and reunion years as predictors of alumni giving. We also account for other variables that may affect alumni giving, including: volunteering during college, relatives attending college, proximity to an alumni chapter office, attending a language school[4], ranking of potential donors by the Alumni Office, and athletic participation.

The main purpose of this study is to examine giving behavior of consistent donors (i.e., the donors who contribute each year) as well as all other donors (i.e., those who contribute occasionally). Accordingly, this study uses micro-level data of alumni donations of Middlebury College[5] from 1972 to 1994 (i.e., for a period of 23 years) for both consistent donors (Sample A) and occasional donors (Sample B). All donors in the sample graduated between the years of 1925 and 1972. The data were obtained from a small, private liberal arts college. The gifts were standardized to 1982-84 dollars. The dependent variable for the model is LNRGIVE, which is the log of the real amount given. The log of the real donations was used to capture non-linearities in the giving profiles of the donors. The following is the empirical specification[6]:

$$LNRGIVE = \beta_0 + \beta_1 AGE + \beta_2 AGESQ + \beta_3 MALE + \beta_4 RELATIVE + \beta_5 SPORT +$$
$$\beta_6 GREEK + \beta_7 VOLUNT + [\text{Vector of Division dummies}] + [\text{Vector of Rating dummies}] + \beta_{14} LANGSCH + [\text{Vector of Sector dummies}] + [\text{Vector of Reunion dummies}] + \beta_{21} CHAPTER + Error$$

[4] As part of the curriculum, students go to Middlebury College's foreign language schools abroad to study of French in Paris (France), German in Mainz (Germany), Italian in Florence (Italy), Russian in Moscow, Irkutsk, Yaroslavl, and Voronech (Russia); and Spanish in Madrid, Getafe, Logrono, and Segovia (Spain). Also on its main campus, Middlebury hosts eight extensive summer language programs focusing on Arabic, Chinese, French, German, Italian, Japanese, Russian, and Spanish.

[5] Middlebury College is one of New England's oldest coeducational small residential liberal arts colleges situated in the town of Middlebury, Vermont. It was established in 1800.

[6] Given the log-lin nature of the empirical model the coefficients scaled as (e^{β} - 1) could be interpreted as partial elasticities (i.e., a resulting percentage change in real giving in response to changes in independent variables). See Appendix B for variable definitions.

4. DATA

Our data set is representative of many other private baccalaureate institutions[7], since many of these schools have a similar enrollment, curriculum and student profiles as the one studied here**.** The sample of consistent donors (i.e., individuals who gave each year for the 23 year cycle) included 1,095 individuals resulting in a total sample of 25,185 (= 1095 x 23). We considered consistent donors to account for characteristics of those alumni most likely to provide future gifts, because the historical trend of consecutive donors may provide insight on the life-cycle hypothesis of alumni donations. Furthermore, alumni officials place great emphasis on consistent donors when setting goals for alumni fund raising efforts (Okunade, Wunnava and Walsh, 1994).

Given the fact that consistent donors are only a minority, it is very crucial that the Alumni office encourage occasional donors to contribute as frequently as possible. The sample of occasional donors (i.e., those who gave sporadically) consisted of 7,511 alumni, resulting in a total sample of 88,327 over the 23-year period. It is interesting to note that this college's alumni participation in giving to their alma mater during the sample years is 73.8 percent (= [consistent donors: 1,095 + occasional donors: 7,511]/total alumni base: 11,673). The sample means for both donor groups are reported in Table 2. It is obvious from Table 2 that consistent donors on an average give higher amounts than occasional donors.[8] Not surprisingly, on an average, consistent donors are a bit older than occasional donors. It is also worth noting that more than half of the occasional donors live in chapter states relative to a 20 percent residence in chapter states by consistent donors.

[7] Examples include institutions such as Amhearst, Bates, Bowdoin, Bryne Marr, Carlton, Colby, Connecticut, Davidson, Hamilton, Haverford, Oberlin, Ponoma, Reed, Swarthmore, Washington & Lee, Wellsley, and Williams, to name a few.

[8] The difference in average giving between consistent and occasional donors is statistically significant. The observed z value is 50.6203. Details of the test can be obtained upon a request.

Table 2.
Sample Characteristics

Sample A: Consistent Donors				Sample B: All Other Donors			
Variable* **	**N**	**Mean**	**Std Dev**	**Variable*** **	**N**	**Mean**	**Std Dev**
LNRGIVE	25,185	4.3416	1.3558	LNRGIVE	138,467	.09796	.29726
AGE	25,185	33.947	13.230	AGE	138,467	20.580	14.797
AGESQ	25,185	1327.4	927.39	AGESQ	138,467	642.46	786.80
SEX	25,185	.36895	.48253	SEX	138,467	.48801	.49986
RELATIVE	25,185	.55525	.49695	RELATIVE	138,467	.43373	.49560
SPORT	25,185	.12785	.33393	SPORT	138,467	.18746	.39028
GREEK	25,185	.30137	.45886	GREEK	138,467	.31131	.46303
VOLUNT	25,185	.25297	.43472	VOLUNT	138,467	.14535	.35245
Division Dummies				**Division Dummies**			
SSCIENCE	25,185	.26667	.44223	SSCIENCE	138,467	.30859	.46191
LITERATR	25,185	.11416	.31801	LITERATR	138,467	.13181	.33828
FLANG	25,185	.11689	.32130	FLANG	138,467	.10259	.30343
ARTS	25,185	0.484E-01	.21462	ARTS	138,467	0.526E-01	.22321
Rating Dummies				**Rating Dummies**			
SUPER	25,185	0.420E-01	.20061	SUPER	138,467	0.196E-01	.13847
MODERATE	25,185	.11872	.32347	MODERATE	138,467	0.589E-01	.23547
Language Dummy				**Language Dummy**			
LANGSCH	25,185	0.457E-01	.20876	LANGSCH	138,467	0.980E-01	.29726
Industry Dummies				**Industry Dummies**			
FINANCE	25,185	0.557E-01	.22936	FINANCE	138,467	0.580E-01	.23372

PERSSERV	25,185	.15434	.36128	PERSSERV	138,467	0.773E-01	.26704
PROFSERV	25,185	.22922	.42034	PROFSERV	138,467	.24277	.42876
EDUC	25,185	.20000	.40001	EDUC	138,467	.14840	.35549
Reunion Dummies				**Reunion Dummies**			
R1	25,185	.11142	.31465	R1	138,467	.20626	.40462
R2	25,185	0.465E-01	.21056	R2	138,467	0.365E-01	.18746
Chapter Dummy				**Chapter Dummy**			
CHAPTER	25,185	.19845	.39884	CHAPTER	138,467	.55244	.49724

*** See text for variable descriptions.

Table 3.
Regression results (Dependent variable: Log of real amount given in 1982-84 dollars)

Sample A: Consistent donors*				Sample B: All other donors**			
Variable* name**	**Estimated coefficient**	**T-ratio (25,163 d.f.)**	**P-value**	**Variable*** name**	**Estimated coefficient**	**T-ratio (88,305 d.f.)**	**P-value**
AGE	0.0411	30.24	0.000	AGE	0.0409	36.908	0.0001
AGESQ	-0.0003	-17.02	0.000	AGESQ	-0.0005	-29.566	0.0001
Gender dummy				**Gender dummy**			
MALE	-0.0040	-0.1593	0.873	MALE	0.0940	7.030	0.0001
Relative dummy				**Relative dummy**			
RELATIVE	0.1430	12.23	0.000	RELATIVE	0.0591	8.020	0.0001
Sports dummy				**Sports dummy**			
SPORT	0.1997	9.522	0.000	SPORT	0.0247	2.284	0.0224
Fraternity dummy				**Fraternity dummy**			
GREEK	0.0214	0.8135	0.416	GREEK	0.0828	6.026	0.0001
Volunteer dummy				**Volunteer dummy**			
VOLUNT	0.7919	52.38	0.000	VOLUNT	0.6722	62.290	0.0001
Division dummies				**Division dummies**			
SSCIENCE	0.1395	9.860	0.000	SSCIENCE	0.0362	4.073	0.0001
LITERATR	0.0519	2.598	0.009	LITERATR	-0.0134	-1.098	0.2721
FLANG	0.1168	5.505	0.000	FLANG	-0.0532	-3.919	0.0001
ARTS	0.0683	2.650	0.008	ARTS	-0.1161	-6.465	0.0001
Rating dummies				**Rating dummies**			

SUPER	1.4989	33.51	0.000	SUPER	1.5536	68.779	0.0001
MODERATE	0.8166	37.43	0.000	MODERATE	1.0229	71.244	0.0001
Language dummy				**Language dummy**			
LANGSCH	0.2258	9.074	0.000	LANGSCH	0.1939	10.061	0.0001
Sector dummies				**Sector dummies**			
FINANCE	0.3560	11.67	0.000	FINANCE	0.0573	3.249	0.0012
PERSSERV	0.1355	6.881	0.000	PERSSERV	0.1762	12.522	0.0001
PROFSERV	0.1366	8.200	0.000	PROFSERV	0.0285	3.059	0.0022
EDUC	0.0755	4.406	0.000	EDUC	-0.1974	-18.917	0.0001
Reunion dummies				**Reunion dummies**			
R_1	0.1396	6.747	0.000	R_1	0.1438	14.786	0.0001
R_2	0.8640	46.94	0.000	R_2	0.7277	41.313	0.0001
Chapter dummy				**Chapter dummy**			
CHAPTER	0.1972	21.22	0.000	CHAPTER	0.0254	3.476	0.0005
CONSTANT	2.6739	100.5	0.000	CONSTANT	2.801	153.282	0.0001
Buse-Rsq = 0.3769				Rsq = 0.2298			

* Based on cross-sectionally heteroskedastic and time-wise autoregressive estimation method of Kmenta (1986) given the longitudinal nature of the data.

** OLS estimation method given the stacked nature of the data.

*** See Appendix B for variable descriptions.

The regression results for both samples are reported in Table 3. Given the longitudinal nature of Sample A (i.e., combination of both time-series and cross-sectional data), the model was estimated by the POOL command (which accounts for both heteroskedasticity and autocorrelation) of *Shazam*. This is otherwise known as a *cross-sectionally heteroskedastic and time-wise autoregressive model* (Kmenta, 1986).[9] With the exception of the MALE[10] and GREEK variables, all other variables were significant at the 95 percent confidence level.

Since Sample B is not purely longitudinal in nature, OLS is used for estimation. The focus here is on the alumni donations from 1972 to 1994 of occasional donors (i.e., graduates from the classes 1925 through 1972). With the exception of the coefficient for the LITERATR dummy, all the estimates for Sample B are statistically significant. In general, the majority of Sample A coefficients are larger in magnitude than those of Sample B.

5. RESULTS

Consistent versus Occasional Donors: Profile Similarities/Differences

The Gender Effect:

One variable of marked difference between the two samples is the MALE variable, which is significant for occasional donors but not for consistent donors. Among consistent donors, the lack of significance of the MALE variable indicates that, based on longitudinal sample, no statistical difference exists between the giving of men and women. Okunade, Wunnava, and Walsh (1994) found similar results.

The Reunion Effect:

Reunions also are a time of increased giving for consistent and occasional donors alike. The reunion dummies in Sample A behaved as expected. The estimate of R_2 (which categorizes the 25th, 50th, and 60th reunions) is much higher than R_1 (which captures every 5th reunion). The R_1 coefficient of .139 indicates that about a 14.9 percent increase in the level of alumni donations occurs during the reunion years. This increase is to be expected. Much more interesting, however, is the coefficient of the R_2 dummy, whose relatively larger magnitude reflects a 137 percent increase in the level of alumni donations during *major* reunion years. Once this estimated value (.864) is added to the coefficient of R_1, the *total* reunion effect could be computed. The results suggest that during these major reunions, alumni donations show an increase of 172 percent[11].

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[9] This technique, by subjecting the observations to two transformations, one designed to remove autocorrelation and the other to remove heteroskedasticity, comes up with a disturbance term (ε_{it}) that is asymptotically nonautoregressive and homoskedastic. To find consistent estimates, OLS is applied to obtain the regression residuals and then these are used to perform transformations so that the error term is asymptotically nonautoregressive and homoskedastic [for details see Kmenta (1986) pp. 618-622]. The particular characteristics of this model are as follows:

$E(\varepsilon_{it}^2) = \sigma_i^2$ (heteroskedasticity)

$E(\varepsilon_{it}\, \varepsilon_{jt}) = 0$ [($i \neq j$ -- cross-sectional independence]

where

$\varepsilon_{it} = \rho_i \varepsilon_{i,t-1} + u_{it}$ (as far as autocorrelation is concerned 'ρ_i' may vary across the cross-sectional units and u_{it} is the classical error),

$u_{it} \sim N(0, \sigma^2_{ui})$,

$\varepsilon_{it} \sim N(0, [\sigma^2_{ui}/1-\rho^2])$, and

$E(\varepsilon_{i,t-1}\, u_{jt}) = 0$ for all i, j.

[10] Brittingham and Pezullo (1990) show that neither gender nor marital status may be good predictors of alumni giving.

[11] $(e^{.139+.864} - 1) = 1.72$ (i.e., 172%).

It has been documented in the literature [for example, Grant and Lindauer (1986), Olsen, Smith, & Wunnava (1989)] that reunions play a crucial role for occasional donors. The rationale suggests that both alumni participation and especially gift giving are higher during reunion years than in non-reunion years. Accordingly, the estimates of reunion dummies (R_1 = .1438, R_2 = .7277) are indeed comparable to that of consistent donors (R_1 = .1396, R_2 = .8640). One study (Connolly and Blanchette, 1986) suggest that when planning to attend reunions, in some instances, alumni may be more interested in their classmates than they are in becoming involved directly with the institution. This theory may be more appropriate for occasional donors: the opportunities to see fellow alumni may be the impetus occasional donors need to donate. Five-year reunions may be more important for occasional donors than other major reunions.

The Life-Cycle (Age) Effect:

As expected, AGE (AGESQ) variables support the life-cycle hypothesis among consistent donors (Olsen, Smith, and Wunnava, 1989). One can predict the growth rate of alumni donations by evaluating the partial derivative $\delta LNRGIVE/\delta AGE = 0$ from the estimated equation -- which yields AGE* to be about 61 years[12]. So it is apparent that the growth rate of alumni donations remains positive until the class age of alumni reaches 61 years. Assuming that the average alumnus/alumna is about 21 years old when he/she graduates from this college, this would mean that he/she would be about 82 years of age when the growth rate of giving begins to level off and then decline. Hence one could conclude that the pattern of giving goes beyond the typical average retirement age of 65, and the Alumni office could benefit from soliciting contributions from alumni who may have passed their retirement age.

Examining Sample B reveals a donation profile of much shorter duration. It is apparent that the growth rate of alumni donations remains positive until the class age (AGE*)[13] of alumni reaches only about 39 years. Assuming that an average alumnus/alumna is about 21 years old when he/she graduates from this college, this would mean that he/she would be about 60 years of age when the growth rate of giving peaks and the level of contributions begins to level off and then decline. Hence one could conclude that the pattern of giving peaks considerably before the typical retirement age of 65 -- and it may be hard for the Alumni/Development office to solicit increased contributions from alumni who may be fast approaching their retirement age. This is a stark contrast to the findings for consistent donors. Thus, alumni offices should target occasional donors before they reach retirement age.

Effect of Volunteering:

Among consistent donors, the results indicate that volunteering during college has a relatively strong effect on giving after graduation. This is indicated by the large (=.792) and statistically significant coefficient of VOLUNT variable. Hence alumni who volunteer contribute about 120 percent more[14] than non-volunteer alumni. This finding that volunteering alumni give more than non-volunteering alumni is in accordance with the trend detected by a recent survey that volunteers in general give more than non-volunteers to charity[15]. Although showing a slightly smaller effect than in consistent donors, those occasional donors who volunteered during college also gave significantly more, approximately 96 percent[16] more than those who did not volunteer.

Involvement Effect (Relative/Sport variables):

The RELATIVE and SPORT dummy variables are highly significant and indicate marginal effects[17] of about 14.3 and 20.0 percent, respectively for consistent donors. In contrast, occasional donors show much smaller (though statistically significant) marginal effects for these two variables. In sample B, the

[12] AGE* = .041086/2(.0003363) = 61.06 years.
[13] AGE* = .040912/2(.000523) = 39.11 years.
[14] $(e^{.792} - 1) = 1.20$ (i.e., 120%).
[15] *Giving and Volunteering in the United States Findings from a National Survey* (1996).
[16] $(e^{.672} - 1) = 0.96$ (i.e., 96%)
[17] $(e^{.143} - 1) = .1537$ (i.e., 15.37%) and $(e^{.20} - 1) = .2214$ (i.e., 22.14%).

estimates for RELATIVE and SPORT amount to 5.9 and 2.5 percent, respectively. Clearly, the impact of involvement is higher for consistent donors, and is reflected in their donations.

Area of Study & Job Sector Effect:

The benchmark for area of study is a combination of individuals in the Humanities division, Natural Science division and miscellaneous majors. For consistent donors, the Social Sciences division had the highest estimate (=.14) of all the division dummies, which is not at all surprising, followed by the Foreign Languages division with an estimate of .117. The remaining divisions of Literature and Arts nearly tied, with estimates in the range of .052 to .068, respectively.

Occasional donors showed a negative effect on giving if their major fell into the Foreign Languages or Arts division; this directly contrasts the findings for consistent donors. Further, for consistent donors, of the sector dummies, the FINANCE coefficient estimate (.356) is the highest. However, for occasional donors, those who work in the personal service sector (hotel/restaurant business) contribute almost 12 percent more (.176 versus .057) than the alumni employed in the finance sector.

Interestingly, for both consistent and occasional donors, those alumni who attended a language school seemed to have an affinity toward the college, as their estimates of .22 and .19, respectively, are relatively large and statistically significant.

Other Results:

The lack of GREEK significance among consistent donors indicates that there is no statistical difference between the donations of members and non-members of Greek organizations. This is very different from the occasional donor sample, where the 0.083 was highly significant.

The CHAPTER variable is a regional variable that attempts to capture the giving in cities where official alumni chapters exist. Our data are limited by state, and therefore interpretation of the CHAPTER results should be taken with caution. For example, New York City has an active alumni chapter. Yet, New York City is not necessarily a valid indicator of the giving for the entire state of New York.

As expected, the alumni with a SUPER rating gave more than one and one half times as much as those with a MODERATE rating (1.49 v/s .82). This could be translated as premium contributions of 344 percent and 126 percent, respectively[18] by rated [19] alumni relative to other alumni. Very similar premia can be observed from the rating dummies for occasional donors, with 371percent and 177 percent[20] contributions, respectively.

6. CONCLUSIONS

This study observed the financial giving of alumni at a small, private liberal arts college over a 23-year period. After observing historical characteristics of donors, college officials have a greater probability of accurately predicting future alumni gifts. For both consistent (Sample A) and occasional (Sample B) donors, our research identified the following characteristics of alumni as some of the most important to donating: volunteering for the college, major in the social science division, language school attendance, residence in states with alumni chapters, and employment within the financial sector. Additionally, alumni with relatives who have attended the college and alumni who have played a varsity sport during college are two groups very likely to donate. The efforts of the Alumni office seem to be fruitful in terms of rating potential donors, and also in arranging major reunions.

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[18] ($e^{1.49}$ - 1) = 3.44 (i.e., 344%) and ($e^{.82}$ - 1) = 1.26 (i.e., 126%).

[19] Alumni office staff and volunteers derived these ratings based on their analysis of some or all of the following characteristics of potential donors: occupation, interest in the college/neighborhood, previous generosity, gifts given to other institutions, and anecdotal evidence of family resources.

[20] ($e^{1.55}$ - 1) = 3.71 (i.e., 371%) and ($e^{1.02}$ - 1) = 1.77 (i.e., 177%).

Focusing on a longitudinal sample (Sample A) provides valuable insights into life-cycle behavior of alumni giving. Interestingly, gender and membership in Greek fraternities are statistically insignificant for consistent donors. Since consistent donors are only a minority, the Alumni Office should also focus on sporadic donors and encourage them to give more frequently. Sample B (occasional donors) gives slightly a different story than Sample A. The role of gender and membership in Greek fraternities is indeed statistically significant for occasional donors. One other area of marked difference is the donation profile of shorter duration for occasional donors relative to consistent donors.

Based on our results, Alumni Offices may benefit from the following policies. Careful ranking of alumni giving potential is crucial, and Alumni Offices should continue (or start) the practice of rating potential donors. Reunions, both five year and major, are times of increased giving from alumni; thus, extensive publicizing of reunion events may encourage greater participation. Alumni Offices should target those who volunteered during college. Among occasional donors, Alumni Offices may want to concentrate on male donors and those who are members of Greek fraternities or sororities. Since occasional donors have a shorter duration of giving than consistent donors, Alumni Offices may benefit from focusing on occasional donors prior to their retirement years.

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Table 4.
Appendix A
Revenue of baccalaureate degree-granting institutions, by source of funds
1993 - 94 to 1995 - 96

	1993-94	1994-95	1995-96
		($ '000)	
Public baccalaureate institutions			
Total revenue	2,295,679	2,514,859	2,614,689
Federal government	107,299	162,796	169,645
State government	1,023,881	1,127,165	1,119,902
Local government	24,368	21,070	20,952
Private gifts and grants	51,001	58,890	69,393
Private baccalaureate institutions			
Total revenue	11,830,417	12,608,249	13,844,720
Federal government	390,636	413,518	427,024
State government	327,401	339,147	346,823
Local government	2,885	2,814	9,828
Private gifts and grants	1,033,854	1,088,520	1,299,133
	1993-94	**1994-95 (as a % of total revenue)**	**1995-96**
Public baccalaureate institutions			
Federal government	4.67%	6.47%	6.49%
State government	44.60%	44.82%	42.83%
Local government	1.06%	0.84%	0.80%
Private gifts and grants	2.22%	2.34%	2.65%
Private baccalaureate institutions			
Federal government	3.30%	3.28%	3.08%
State government	2.77%	2.69%	2.51%
Local government	0.02%	0.02%	0.07%
Private gifts and grants	8.74%	8.63%	9.38%

Source: *Digest of Education Statistics, Table "Revenue of degree-granting institutions,* by source of funds, and by control and type of institution," U.S. Department of Education (various years).

Appendix B
Variable definitions

LNRGIVE =log of real amount given (in 1982-84 dollars)

AGE =giving year *minus* year of graduation; AGESQ=age squared

MALE =1 for male; 0 otherwise

RELATIVE =1 if a relative attended this institution; 0 otherwise

SPORT =1 if played a varsity sport; 0 otherwise

GREEK =1 if was member of fraternity or sorority; 0 otherwise

VOLUNT =1 if was active in volunteer programs; 0 otherwise

Division dummies (Benchmark category consists of Humanities Division + Natural Science Division + Miscellaneous)

SSCIENCE =1 if major - Social Science Division, contains: Economics, Geography, Political Science, Psychology, Sociology-Anthropology, Teacher Education; 0 otherwise

LITERATUR =1 if American Literature and Civilization, English; 0 otherwise

FLANG =1 if major - Foreign Language Division, contains: Chinese, French, German, Italian, Japanese, Russian, Spanish; 0 otherwise

ARTS =1 if major - Arts Division, contains: Art, Music, Theater, Dance, and Film/Video; 0 otherwise

Rating dummies

SUPER =1 if giving potential of an alumni is $100,000 - $1,000,000 (over 5 years), as ranked by the alumni office; 0 otherwise

MODERATE =1 if giving potential of an alumni is $ 25,000 - $99,999 (over 5 years), as ranked by the alumni office; 0 otherwise

Language dummy

LANGSCH =1 if alumni attended a language school program of this institution; 0 otherwise

Sector dummies

FINANCE =1 if alumni belongs to banking(commercial/investment/savings/trust), brokerage, insurance, or real estate sector; 0 otherwise

PERSSERV =1 if alumni belongs to hotel and restaurant sector or a homemaker; 0 otherwise

PROFSERV =1 if alumni belongs to any of the following sectors: accounting, agribusiness, architecture, aviation/aerospace, financial analyst, import/export, library work, economist, electronics, museum/historical preservation engineering, industrial designer, investment counseling, law, medicine (health services, nursing, physicians, dentists, etc.), personnel/counseling; 0 otherwise

EDUC =1 if alumni belongs to education sector; 0 otherwise

Reunion dummies

R_1	=1 for every 5th year reunion; 0 otherwise
R_2	=1 for every 25th, 50th, and 60th year reunion; 0 otherwise

Chapter dummy

CHAPTER	=1 if alumni lives in one of the following states: CA, CO, CT, IL, MA, NY, VT, WA; 0 otherwise

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