Charitable Giving of Alumni:

Micro-data Evidence From A Large Public University

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Abstract. This research examines the "age-donation" profile of gift-giving *alumni* at a large public *university,* based on a pooled micro-data random sample of 4,242 alumni (1926/27–1989/90 graduates) who gave cash *gifts* during the 1975/76–1989/90 fiscal years. The covariance regression model results indicate lack of statistically significant difference between gift-giving women and men. However, the School of Business *graduates,* alumni who proceeded to obtain graduate degrees from this university, and alumni members of non-Greek *social organizations* gave significantly more. Moreover, *alumni contributions* varied systematically over the *business cycle* and a 1962 Federal Court Order to desegregate the university racially reduced *donations* but not significantly. Given the 63-year cycle studied, the growth rates of alumni donations of money are projected to decline after roughly age 52, which falls short of the typical retirement age.

I

Introduction

Because of recent shortfalls in funds for higher educational institutions at all government levels (U.S. Congress, Senate, Committee on the Budget, 1987), determining the factors which influence alumni gifts to higher education becomes more important. Currently, public financing of higher education continues to worsen nationwide.[1] Academic institutions must tap into their alumni's wealth to maintain or increase funds for academic programs. While external corporate donors may be more motivated to support higher education when alumni contributions to the alma mater are high, this research examines only alumni personal charitable donations.

In a life-cycle model of charitable contributions, individual donations are viewed as recurrent consumption outlays for nondurable goods and services (Meyer, 1980, 217) and are expected to increase with the donor's age. Charitable donations also tend to increase with donor incomes (or earnings) and marginal income tax rates (Kitchen and Dalton, 1990). These determinants usually increase over the donor's working life. Accurate information on donors' incomes are rarely available, however.

Due to data limitations, past researchers (Grant and Lindauer, 1986; Olsen, Smith, and Wunnava, 1989) proxied income with age to approximate the life-cycle of alumni giving. However, because an individual's income elasticity for charity may differ from his or her elasticity of charitable giving with respect to age, the life-cycle profile of alumni donation may not coincide with the age-income profile of the donor. Consequently, this study departs from past practice by focusing instead on the age-giving profile of alumni donors.

The modeling framework adopted here allows the determination of the time period within which the growth rate of alumni gifts is expected to remain positive and whether or not this follows donors' age-income profiles. Consequently, the study results can be useful for projecting alumni donations and for identifying the gift-enhancing attributes of the alumni. Moreover, unlike past research, this study is unique in that individual-specific micro-panel data (i.e., following given cross-sections of donors over time) of a large public university are used. Consequently, the effects on giving of a donor's gender, college of major, graduation with (or without) honors, graduate education (and where obtained), involvements in campus Greek clubs and other non-Greek organizations, etc., are evaluated here. How the business cycle and a 1962 Federal Court Order to desegregate the university racially affected alumni donations are also evaluated.

II

Review of Related Literature

SEVERAL THEORETICAL FRAMEWORKS exist for modeling charitable donations. There is the economics of charity approach based on the theory of consumer demand for a nondurable good or service. This approach focuses on the price and income effects of voluntary charitable donations (Feldstein and Taylor, 1976) and also enables researchers to evaluate how changes in the tax policy affect the level of charitable contributions (Hood, Martin, and Osberg, 1977; Feldstein, 1975; Glenday, Gupta, and Pawlak, 1986; Kitchen and Dalton, 1990). A second approach rests on the contention that charity-giving individuals are driven by a sense of obligation to provide collective goods and services for the society through say, the United Way (Keating, 1981). In a third approach, charitable contributions

are viewed as "payments" in exchange for intangible personal rewards of self-esteem or group membership (Keating, Pitts, and Appel, 1981; Zaleski and Zech, 1992). Finally, Becker's (1974) theory of social interactions posits interdependent utility functions for unrelated individuals as the motive for charitable giving.

These seemingly divergent rationales for voluntary personal charitable donations to non-profit entities are fully compatible with the utility maximization framework. That is, each donor can be said to derive some utility (or satisfaction) from giving to charities, regardless of the specific motive for giving. Since alumni are individuals with wide ranging motives for donating, the utility-based theories appear to be globally compatible when modeling alumni charities using micro-data.

The applications of charity economics to higher educational institutions that postulate the demand-related life-cycle hypothesis for alumni are scanty. Two recently published empirical studies of four-year liberal arts colleges are Grant and Lindauer (1986) and Olsen, Smith, and Wunnava (1989). Feldstein's study of income tax and charitable donations as they relate to religious, educational, and other organizations concluded that gifts to educational institutions are very sensitive to the cost of giving (Feldstein, 1975, 209). Kitchen and Dalton (1990) researched the determinants of charitable donations by families in Canada, and how charitable giving is affected by the substitution of credits for tax deductions (p. 298). Grant and Lindauer (1986) studied how the tax treatment affects alumni giving. They found that: (i) the growth rate of alumni giving eventually declines with donor age (however, the point at which it begins to decline does not coincide with the typical retirement age), and (ii) factors other than income and marginal income tax rates affect alumni donations (Grant and Lindauer, 1986, pp. 131–132). These findings motivated the Olsen-Smith-Wunnava (1989) study, which found alumni gifts to be especially higher than average during reunion years with a correspondingly lower amount of total charities following reunion years (pp. 61–62). Grant and Lindauer (1986, p. 137), however, earlier cautioned that ". . . anticipation of reunions may cause a pre-reunion decrease in gifts and number of donors while post-reunion responses may also produce shortfalls from trend projections."

The empirical findings of two alumni donation studies by Grant and Lindauer (1986) and Olsen, Smith, and Wunnava (1989) relate to liberal arts institutions in north-eastern U.S. and may not apply to a comprehensive university, such as the one studied here. Moreover, while the Grant-Lindauer study utilized a modified average cross-sectional data of the all-female Wellesley College in Massachusetts, and the Olsen-Smith-Wunnava study analyzed pooled aggregated data of co-educational Middlebury College in Vermont, the present study is based on panel micro-data of a comprehensive university outside of the north-

eastern United States. Finally, past studies used aggregated data and thus, were unable to assess how individual-specific attributes may affect donations by alumni. The present study circumvents this limitation by using panel micro-data set of gift-giving alumni.

<div align="center">III</div>

Data and Methodology

DATA ON ALUMNI were obtained from the development office of a large public university in a major US metropolitan area. Sample data covered 303 randomly selected under-graduate alumni donors who graduated between 1926/27 and 1975/76. Each gave for at least 10 of the 14 years in the 1975/76–1989/90 period. Information on individual-specific giving of gifts and the givers personal profiles were unavailable before the fiscal year 1975/76. Moreover, no cross-section was isolated to examine one specific group's giving history. This makes it possible to capture alumni at various points in their post-degree life-cycles using the pooled data set. The data structure also permits investigation of how the various major macroeconomic events (e.g., Arab oil embargo recessions of the late 1970s, the recessionary years of the early 1980s, and the changing tax laws of the mid-to-late 1980s) may have influenced alumni donations.

The sample data allows further clarification. Since the alumni gave consistently for at least 10 of the 14 post-graduation years, their historical givings could yield insights on the life-cycle effects regarding alumni donations. This is not to discount the importance of infrequent donors. While sporadic cash contributions of the infrequent donors are welcome, university officials (e.g., Directors of Development) who have fund raising responsibilities typically put more weight on the historical contributions of consistent givers when setting realistic goals for their annual alumni fund drives. Consequently, the consistent givers constitute a vital segment of the gift-giving body of alumni.

Nominal alumni gifts were deflated to constant 1982–83 dollars using the "calendar year"-based quarterly GNP deflator converted to the fiscal year basis (so as to achieve consistency with fiscal year data on gifts).[2] The log of real alumni gifts used as the dependent variable in past research, is also the dependent variable in our regression model specification of alumni charitable giving. (A value of $1.00 was assigned in real terms if giving is zero, so a log transformation of the dependent variable can be executed for such years). Regressors include controls for: the ith individual's time-since-graduation (hereafter, "age"), computed as the difference between the year of graduation [g] and the year a cash gift is given [t]; age squared (to capture nonlinear tendencies in charitable giving due to donor's age-income profile); gender (to account for any gender-induced

differences in donations due to historical gaps in male versus female earnings); college of graduation (to capture the influence of alumni major fields of study on giving, since returns to college degrees differ across the disciplines); membership in social Greek clubs and non-Greek organizations (to capture the sense of belonging, as memberships in different types of clubs may impact differently on charitable giving); graduation with honors; alumni who returned to obtain graduate degrees;[3] and the U.S. Federal Court racial desegregation order for this university (to capture its effect on alumni gifts by presumably white donors).[4]

Since the data have both time-series and cross-sectional components, it is necessary to include separate time-series and cross-sectional dummies (to capture year-specific and graduation class-specific effects, respectively). The 13 time-series dummies (1976 to 1989, with 1983 the omitted category) measure how major macro-economic trends impact on alumni charities. There are four cross-sectional dummies of five-year durations (1956–60, 1961–65, 1966–70, and 1971–75, with graduating classes up to 1955 collapsed into the reference category due to smallness of their cells).[5] The cross-sectional dummies capture any trends in alumni giving which may be unique to a given cross-section of alumni. Finally, a covariance specification is employed, since it is suitable for dealing with pooled cross-section and time-series data when each cross-sectional unit and each time period are characterized by their own special intercept. (Kmenta, 1986, pp. 630–5 gives the econometric details of the covariance model used in this study). The above discussion leads to the ensuing empirical regression model specification of alumni personal charitable giving:[6]

$$\text{Log (Alumni Donation)}_{itg} = \beta_0 + \beta_1(AGE)_{itg} + \beta_2(AGESQ)_{itg}$$
$$+ \beta_3(MALE)_{itg} + \beta_4(BUSNECON)_{itg} + \beta_5(ARTSNSCI)_{itg}$$
$$+ \beta_6(FRATERN)_{itg} + \beta_7(ORTHORG)_{itg} + \beta_8(HONORS)_{itg}$$
$$+ \beta_9(GRADSCHL)_{itg} + \beta_{10}(HONGRAD)_{itg} + \beta_{62}(RACDESEG)$$
$$+ [\text{Vector of time-series dummies}]\phi$$
$$+ [\text{Vector of cross-section graduating class dummies}]\mu + \text{error}_{itg},$$

where the variables are labeled and defined in Table 1 (columns 1 and 2). Following Heckman (1979), the model was expanded to incorporate an Inverse Mills Ratio term, FREQHECK (a sample selectivity variable) to account for the possibility that the frequent donors sample analyzed in this paper may not represent a random selection from the overall population of donors.[7] For comparative purposes regressions with and without selectivity correction are presented.

IV

The Empirical Results

REGRESSION RESULTS with a sample selectivity variable FREQHECK (columns 3 and 4, Table 1) mimic those without it (columns 4 and 5). [Thus, the infrequent

Table 1

REGRESSION RESULTS *WITH* (COLUMNS 3-4) AND *WITHOUT* (COLUMNS 5-6) HECKMAN'S
CORRECTION FOR SAMPLE SELECTIVITY.   DEPENDENT VARIABLE IS LOG (ALUMNI DONATION)

Variable Definition	Variable	Estimate	T-Ratio	Estimate	T-Ratio
Regression constant[a]	INTERCEPT	2.2558	5.536***	2.0414	5.916***
Sample selectivity term (Inverse of Mill's Ratio)	FREQHECK	-0.7578	-0.990	------	-----
Donation year minus graduation year	AGE	0.0405	2.556**	0.0437	2.827**
Square of [donation year minus graduation year]	AGESQ	-0.0009	-4.546***	-0.0009	-4.589***
Gender: Male=1, Female=0	MALE	0.0904	1.580	0.0664	1.282
College of graduation:					
Bus&Econ=1, 0 other	BUSNECON	0.2262	2.817**	0.1824	2.721**
Arts&Sci=1, 0 other	ARTSNSCI	0.1075	1.294	0.0469	0.835
Membership in social Greek clubs=1, 0 other	FRATERN	-0.1376	-1.486	-0.2967	-0.067
Membership in non-Greek clubs=1, 0 other	OTHORG	0.3802	4.583***	0.3232	5.408***
Graduated with Honors=1, 0 other	HONORS	-0.3938	-2.201*	-0.2490	-2.417*
Graduate degree from this university=1, 0 other	GRADSCHL	0.0131	0.173	0.0635	1.125
Honors alumni with graduate degree from this univ.	HONGRAD	0.5087	2.281*	0.3578	2.199*
Desegregation (Year≥1962=1, 0 other).	RACDESEG	-0.2372	-1.052	-0.4197	-3.238**
Time-Series Dummies:					
1976	TD76	0.5177	3.906***	0.5406	4.141***
1977	TD77	0.2697	2.111*	0.2871	2.270*
1978	TD78	0.3773	3.042**	0.3917	3.181**
1979	TD79	0.1747	1.443	0.1863	1.546
1980	TD80	0.1724	1.451	0.1810	1.528
1981	TD81	0.2764	2.358*	0.2822	2.409*
1982	TD82	0.2162	1.858+	0.2191	1.883+
1984	TD84	0.4419	3.798***	0.4390	3.774***
1985	TD85	0.2291	2.554*	0.2934	2.508*
1986	TD86	0.2608	2.204*	0.2522	2.138*
1987	TD87	0.3247	2.708**	0.3132	2.624**
1988	TD88	0.2312	1.898+	0.2171	1.795+
1989	TD89	-0.5709	-0.461	-0.0737	-0.600
Cross-Sectional class dummies:					
1956-1960	CS56-60	0.1363	0.915	0.0344	0.319
1961-1965	CS61-65	0.1067	0.531	0.2367	1.562
1966-1970	CS66-70	0.1315	0.481	0.3246	1.696+
1971-1975	CS71-75	0.2804	1.025	0.4258	1.846+
Sample Size:		4,242		4,242	
Root MSE [F-Ratio]:		1.429 [5.932]		1.429 [6.109]	

[a] The omitted category consists of the donations in 1983 by pre-1956 non-honor
  alumnae from non-Business/non-Arts & Science majors who were neither involved
  in Greek/non-Greek clubs and did not earn graduate school at this university.
+$p<.10$, *$p<.05$, **$p<.01$, ***$p<.001$. Significance tests are 2-tailed.

donors constituting about 1.2 percent of the random sample were omitted to
obtain useful results that have practical policy implications.] Thus, attention is
focused here on the estimates (columns 3 and 4, Table 1) with the selectivity

correction. Defining FREQHECK as negative $[-f(.)/F(.)]$ (see note 7) for the sample of frequent donors implies that a negative coefficient estimate is required to provide evidence of positive selectivity. The results (column 3, Table 1) indicate a negative coefficient of -0.7578 for FREQHECK, which is not statistically significant (since t-ratio $= -0.990$). This implies that the sample of frequent donors analyzed in this study is not significantly different from donors selected at random from a sample of all donors (frequent and infrequent) with similar characteristics.

Overall, most of the coefficients of donor-specific independent variables of interest to this study are statistically significant. Table 1 estimates are in relation to the base category of donors. That category consists of the donations in 1983 by pre-1956 non-honors female graduates from non-business and non-Arts and Science majors who were neither involved in Greek and non-Greek social clubs, nor attended graduate school at this university.

Alumni gifts bottomed out during the 1983 recession, a finding consistent with the expected general behavior of charitable giving in a recession. Alumni charities were significantly positive as the economy recovered during President Reagan's second term. This finding agrees with the general observation for alumni charitable donations to most US colleges and universities (*Chronicle of Higher Education,* 1988, A1). Cross-sectional class dummies show the tendency for more recent graduates to contribute more than their predecessors. This could be expected, as wage premiums for schooling rose sharply during the 1980s; making workers' level of education an increasingly important determinant of their lifetime earnings (Kosters, 1990, 308). Gender does not influence alumni giving strongly; however, it has the sign predicted by the theory that males have historically higher age-earnings profiles than females (Kaufman, 1991, 335). The gender effect also reflects indirectly the tendency for women to direct their charitable gifts to sources other than their alma mater (e.g., to religious and civic organizations such as "Feed the Hungry" and "March of Dimes"), and the higher likelihood for men to give cash gifts in exchange for personal rewards of self esteem or status symbol (Keating, Pitts, and Appel, 1981).[8]

College of Business and Economics alumni donated significantly more relative to other colleges (consisting of Engineering, Education, Communication and Fine Arts and Nursing— which were lumped together to form a base category due to smallness of their data cells). This may have derived from higher historical average incomes in Business disciplines relative to those in the base group of disciplines.

Alumni members of social Greek clubs tend to donate somewhat less for academic purposes, perhaps because they continue to identify with and channel their charitable contributions to campus chapters and national foundations of

Greek organizations, rather than directly to the university to support strictly academic programs (e.g., scholarships). This is consistent with the "sense of belonging" view advocated by Keating, Pitts, and Appel (1981).

On the other hand, alumni members of non-Greek clubs (e.g., World Affairs Club, Habitat for Humanity, etc.,) appear to donate more significantly to the university for academic purposes. Several factors could make honors graduates less inclined to give to charities relative to non-honors graduates. First, honors graduates typically pursue post-graduate education soon after graduation; thus, they delay repayments of their undergraduate educational loans and compounded their interest costs. Second, they are more likely to start incurring the expenses of family formation (at the nesting stage) simultaneously with, or soon after, completion of graduate education. Third, their loyalty may lie elsewhere if they pursued graduate training at some other university. There is some validity to this argument in Table 1, as the effect of graduate schooling is not strong and that of honors alumni is significantly negative. The impact on giving of honors alumni who also received graduate degrees at this same institution is significantly positive, however. This could derive from longer periods of association with the alma mater. Finally, implementing the US federal government racial deseg-regation order for this university does not appear to have dampened alumni charitable contributions appreciably.[9]

The growth rate of alumni gifts to the university is projected to remain positive for an alumna (alumnus) for approximately 22.5 years[10] after graduation. The typical graduation age of about 29 years at this university versus the norm of about 23 deserves some comment. Most undergraduates enter college as fresh-men at about age 18, return (before graduating) temporarily to full-time em-ployment a few years later for a variety of financial reasons, and re-enroll at the university to pursue a major course of study (full- or part-time) that is quite different from those with which they initially started. The approximate graduation age of 29 added to the 22.5 years post-graduation period predicts the growth rate of alumni giving to remain positive until the age of 51.5. In effect, the growth rate of alumni gifts is expected to level off and decline before the usual retirement age of 65. This may be in response to the need for alumni to increase individual retirement investments shortly before reaching the traditional retire-ment age of 65.

V

Summary and Concluding Comments

THIS RESEARCH investigated the age-donation profile of alumni at a large met-ropolitan public university using pooled micro-data sample of frequent donors.

Given the 63-year (1926/27–1989/90) cycle studied, the growth rate of alumni charitable gifts for academic purposes is projected to remain positive until about age 52, which falls short of the typical retirement age. Thus, the age-giving profile is not completely consistent with that among income, marginal tax rate, and the level of charities. College of Business alumni, alumni members of non-Greek campus clubs, and honors alumni who continued their education at the same university contribute significantly, while Greek club members and honors graduates seem somewhat less inclined to donate funds to their alma mater for academic uses. Interestingly, alumni giving tend not to vary significantly among male and female donors (the random sample analyzed was 50.4% male and 49.6% female). Cross-sectional graduating class dummy variables indicate an increasing trend of alumni giving profiles, with recent alumni giving relatively more gifts than their predecessors. Charitable giving of alumni is also found to be highly sensitive to the business cycle.

The results of this microdata study are currently being used to enhance alumni donations of money to this university. During this period of fiscal stress, limited fund-raising resources are first directed at soliciting funds from alumni having attributes identified in this study that are positively associated with giving, all else equal. There are also ongoing strategic efforts aimed at gaining positive donations from alumni who have attributes which correlate negatively with giving. For instance, alumni members of Greek clubs and their faculty advisors, as well as current faculty and staff members who joined Greek clubs during their college days, and who regularly give donations for academic purposes, are recruited to solicit funds from their respective Greek club members during alumni phonathons. Honors alumni and honors program advisors who give regularly are similarly utilized. Third, this university used to solicit alumni funds once a year; however, Fall and Spring fund drives are now instituted to secure more alumni donations. Seasonal solicitations of alumni gifts are being implemented on an experimental basis, as an (unproven) extension of the findings that alumni donations vary cyclically.

Contrary to the previous findings by Olsen, Smith, and Wunnava (1989) for Middlebury College alumni and Grant and Lindauer (1986) for the all-female Wellesley College alumnae, a separate life-cycle pattern of alumni giving appears to exist from that of the typical retirement income profile of the alumni in this study. Differences in the results could derive from the peculiarities of the institutions studied (private liberal arts colleges in the north east in the past *versus* public university in this study), levels at which data were measured (aggregate data in the past *versus* individual data on frequent donors in this study), and details of the estimated life-cycle model (e.g., with or without alumni reunion effects).

Notes

1. In 1992, for instance, The University of Maryland at College Park trimmed classes, deleted program offerings (such as, Radio/TV and Films), and granted fewer scholarships due to reduced state funding. The University of California System (UCLA and Berkeley) recently established priority funding of the more profitable courses of study in fiscal year 1992/93. In 1992, San Diego State University unveiled plans to eliminate nine academic departments and nearly 150 tenured and tenure-track faculty positions. Nation-wide, 47% of all Colleges and Universities had no budget increase from 1990/91 to 1991/92 and 57% reduced budgets midway through 1992 due to reduced funding. The funding problems of public higher education are now extending to tax-financed high schools (e.g., in California). *Sources:* CNN News, August 2, 1992; *U. The National College Magazine,* Nov. 1992, p. 4; CBS Evening News, Nov. 10, 1992).

2. U.S. regional income deflators could not be used. This is because the alumni, like other U.S. residents, moved from one part of the U.S. to another over the years and there are no records of their previous addresses since the university's Offices of Development and Alumni Affairs retain only current addresses of alumni. Such a record keeping practice made it difficult to deflate donations using specific US regional income deflators where alumni resided at the time donations were made. Consequently, deflation of the dollar amount of donation using the US GNP deflator, rather than the regional price deflators, is reasonable and is not expected to bias the study results.

3. Honors alumni and graduate school alumni dummies are intended to capture the tendencies for them to delay active, full-time employments (through graduate training or other human capital-augmenting investments) for several years after completing the undergraduate degree. The hypothesized sign is negative for honors and graduate school dummies and positive for honors alumni who also completed graduate work at this university (since honors alumni who did not continue training at this university may have shifted their loyalties elsewhere). Readers are cautioned about this assertion, as there are no accurate data on the post-college educational accomplishments of honors graduates who did not attend graduate school; however, discussions with the University Director of Development show that most honors alumni earn graduate degrees.

4. Following implementation of the racial desegregation order, data on alumni racial mix were unavailable before 1975. The first black graduated in 1962 and black alumni have increased steadily since. As a first approximation of the post-desegregation impact on alumni giving (by the predominantly white alumni gift givers), the desegregation dummy was incorporated in the model (i.e., the variable RACDESEG = 1 in 1962 and later, 0 otherwise). Since desegregation, enrollments of black students in predominantly white colleges and universities increased from the mid 1960s to early 1970s (Freeman, 1976, 14). The rise in enrollments of blacks in an historically all-white university could impact negatively on alumni charities if it dampened giving by the mostly white alumni.

5. Smallness of the observed data for the pre-1956 graduating classes should be expected. First, the university graduated fewer students before 1956. Second, death among the earlier graduates is likely to be higher compared with those among the more recent graduating classes.

6. Lack of appropriate data made it impossible to control for: contribution from married alumni (donation is recorded in the name of one person making the pledge); US region of alumni residence (however, most reside in the south); alumni household composition, incomes, and assets; and reunion effects (the university only has an informal 50th reunion and no formal 5th, 10th, etc., reunions).

7. Heckman (1979) treats sample selection bias as specification error. Following the steps he suggested, an appropriate Inverse Mill's Ratio term (labeled FREQHECK in Table 1) was generated as follows. First, $FREQDONOR_i$, an unmeasurable variable, was defined as follows—if

$FREQDONOR_i > 0$, individual i is a frequent donor; if $FREQDONOR_i < 0$, individual i is an infrequent donor (that is, nonFREQDONOR—the omitted group). Next, for the ith individual, the FREQDONOR threshold equation was defined as $FREQDONOR_i = X_i\beta + \epsilon_i$, where X_i includes the exogenous variables in the model that are thought to determine the probability of sample selection, β is the vector of regression coefficients, and ϵ is a residual term. The reduced form threshold function determining sample selection into FREQDONOR and nonFREQDONOR sectors was estimated using the IMR option of PROBIT routine in SHAZAM (White, Wong, Whistler, and Haun, 1990). Third, for the FREQDONOR and nonFREQDONOR sectors FREQHECK variable was computed as: $-f(FREQDONOR)/F(FREQDONOR)$ and $f(FREQDONOR)/[1 - F(FREQDONOR)]$ respectively, where $F(.)$ is the cumulative distribution of a standard normal variable and $f(.)$ is its density function. The first Inverse Mills Ratio term is relevant for this study. Results of the first stage probit model (based on complete sample of 4942, consisting of 4242 observations of frequent donors and 700 observations of infrequent donors) are available on request from the authors. The selectivity term is incorporated in our model (see columns 3 and 4, Table 1).

8. The university's non-profit organization publishes the names of donors and assigns them to "clubs", consisting of "societies", based on annual charity. The President's Club (gifts ≥ $1000), for example, consists of Merit Society ($1,000-$4,999); Hallmark Society ($5,000-$9,999); Regents Society ($10,000-$24,999) and Founder's Society (≥$25,000).

9. One anonymous reviewer raised the interesting question of possible multicollinearity between the 56-60 dummy (i.e., CS56-60) and the desegregation (i.e., RACDESEG) variables. There is no evidence of significant multicollinearity between these two independent variables, since the correlation of -0.39713 between them is somewhat low. Moreover, the Condition Indexes of all the independent variables in the model were checked. Since the values of these indexes are predominantly less than 30, it is reasonable to conclude that there is no evidence of strong multicollinearity in the entire model. Therefore, the regression estimates reported in Table 1 are not plagued by multicollinearity.

10. This was obtained for the 63 year-cycle (1926/27-1988/89) by taking the first derivative of log (alumni donation) with respect to AGE and setting the resulting expression equal to zero [i.e., $0.0405 - 2(0.00091)*AGE = 0$] yields AGE = 22.5 years. This partial derivative evaluated at the mean value of AGE (=23.0168) yields an elasticity of 0.0021, implying that a marginal increase in donor's age beyond 51.5 years only tends to increase real charities by 0.21 percent (that is, about one-fifth of one percent).

References

Abrams, Burton and Mark Schmitz. 1984. "The 'Crowding Out' Effect of Governmental Transfers on Private Charitable Contributions: Cross-Section Evidence." *National Tax Journal* 33: 563-8.

Becker, G. S. 1971. *The Economics of Discrimination*, 2d ed. Chicago: U. of Chicago P.

———. 1974. "A Theory of Social Interactions." *Journal of Political Economy* 82:1063-93.

Chronicle of Higher Education. 1988. "28% Surge in Alumni Contributions." 34(April 13):A1, A34-A35.

Feldstein, Martin. 1975. "The Income Tax and Charitable Contributions: Part III—The Impact on Religious, Educational and Other Organizations." *National Tax Journal* 28:209-226.

——— and A. Taylor. 1976. "The Income Tax and Charitable Contributions." *Econometrica* 44: 1201-22.

Freeman, Richard B. 1976. *The Overeducated American.* New York: Academic Press.

Glenday, G., A. Gupta, and H. Pawlak. 1986. "Tax Incentives for Personal Charitable Contributions." *The Review of Economics and Statistics* 58:688–93.

Grant, James H. and David L. Lindauer. 1986. "The Economics of Charity Life-Cycle Patterns of Alumnae Contributions." *Eastern Economic Journal* 12:129–41.

Heckman, James. 1979. "Sample Bias as a Specification Error." *Econometrica* 47:153–62.

Hood, R. D., S. A. Martin, and L. S. Osberg. 1977. "Econometric Determinants of Individual Charitable Donations in Canada." *Canadian Journal of Economics,* 10:653–69.

Keating, B. 1981. "United Way Contributions: Anomalous Philanthropy." *Quarterly Review of Economics and Business* 21:114–9.

———, Robert Pitts, and David Appel. 1981. "United Way Contributions, Coercion, Charity or Economic Self-Interest?." *Southern Economic Journal* 47:816–23.

Kitchen, Harry and Richard Dalton. 1990. "Determinants of Charitable Donations by Families in Canada: A Regional Analysis." *Applied Economics* 22:285–99.

Kmenta, Jan. 1986. *Elements of Econometrics.* New York: Macmillan.

Kosters, Marvin H. 1990. "Schooling, Work Experience, and Wage Trends." *The American Economic Review* 80:308–12.

Meyer, Laurence H. 1980. *Macroeconomics, A Model Building Approach.* Cincinnati, OH: West Publishing.

Olsen, Katherine, Amy L. Smith and Phanindra V. Wunnava. 1989. "An Empirical Study of the Life-Cycle Hypothesis with Respect to Alumni Donations." *The American Economist,* 33: 60–3.

Reece, William S. 1979. "Charitable Contributions: New Evidence on Household Behavior." *The American Economic Review,* 69:142–51.

U.S. Congress, Senate Committee on the Budget. 1987. *The Impact of the President's Fiscal Year 1988 Higher Education Proposals on the State of Tennessee. Hearings Before the Committee on the Budget.* U.S. Senate, One Hundreth Congress, 1st. Session, Feb. 11–2, 1987. Washington, DC: U.S. Government Printing Office.

White, K. J., S. D. Wong, D. Whistler, and S. A. Haun. 1990. *SHAZAM User's Reference Manual. Version 6.2* New York: McGraw-Hill.

Zaleski, P. A. and C. E. Zech. 1992. "Determinants of Contributions to Religious Organizations: Free Riding and Other Factors," *The American Journal of Economics and Sociology* 51: 459–72.

Precision

PRECISION OF COMMUNICATION is important, more important than ever, in our era of hair-trigger balances, when a false, or misunderstood word may create as much disaster as a sudden thoughtless act.

<div align="right">

JAMES THURBER

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With All Its Faults

To the press alone, chequered as it is with abuses, the world is indebted for all the triumphs which have been gained by reason and humanity over error and oppression.

<div align="right">

JAMES MADISON

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