Giving to the University: A Micropanel Data Model of Business Executive Alumni and Friends of the Alma Mater

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Abstract: Charitable giving to public (and private) institutions of higher learning in the US is a growing major source of support for academic and other programs. Past econometric models focused exclusively on alumni giving. The novel contribution of this paper is the estimation of an econometric model of gift-giving *business executive* alumni and alumni friends of a large public urban university using 9,772 observations [i.e., 372 donors spanning 26 years (1970-1995)]. Regression estimates reinforce earlier research findings that male alumni in Greek social fraternity and alumni of the alma mater (relative to friends of the alma mater) donated significantly more. New insights unique to this study are that the higher order executive job title of a CEO/President (relative to lesser ranks) and intensity of alumni donor activities are highly significant positive drivers of annual donations to the alma mater. Donations pattern seem to be pro-cyclical. The profile of gift-giving *business executive* alumni and friends of the university could be used to more effectively target donors and make fundraising efforts more cost-effective. Directions for further research are outlined.

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1. *Introduction*

Public higher educational institutions in the US increasingly depend on private and other non-governmental sources of support for their educational and related programs as state funding priorities change (e.g., towards Medicaid, public safety, and K-12 education) and as higher education transits from publicly supported to publicly assisted entities (Okunade, 2004). The rising alumni stock of colleges and universities make them a rising source of recurrent support for the alma mater. Giving to annual funds are important sources of unrestricted funds for a college or university and its constituent schools and academic programs; they help to offset declines in state supports and increase funds for student scholarships and retention of distinguished faculty. Colleges and universities strive to maximize charitable giving of alumni and friends of the institution to raise the odds of corporate and foundation supports. Charitable support accounts for about 9 percent of revenues for colleges and universities.

Giving USA (American Association of Fundraising Counsel, 2002) reported that in 2001, individual donors gave about $160.72 billion in charitable donations, 75.8 percent of all giving that year from the four major giving sources (gifts from living individuals, gifts through bequests, gifts from corporations and their foundations, and foundation grants). Individual giving, usually the largest single source of donations, rose 2.9 percent in 2005 after inflation adjustment. This translates to about 2.2 percent of average household after-tax disposable income that year. Charitable giving to higher education declined slightly 1.2 percent (ascribed to alumni giving) to $23.9 billion in 2002 for the first time in 15 years. Alumni donation, historically the largest share (25 percent) of private giving, totaled $5.8 billion in 2002. Individual gifts by non-alumni rose 3.8 percent to $5.4 billion in 2002, according to RAND Council for Aid to Education (2006). The sharp decline in alumni donations in 2002 quickly rebounded in 2002 with a growth of 11.9 percent but overall voluntary support for higher education remained at the $23.9 billion 2002 level.

Charitable given to higher education grows in a strong economy but remains stable in downturns (Council for the Advancement and Support of Higher Education). Therefore, the goal of this research is to construct an econometric model of the determinants of voluntary giving to annual funds of a large public university located in a metropolitan setting of over 1 million people in East South Central geographic region of the United States. Past studies focused exclusively on alumni giving (in private, public, small, medium, large, 4-year and 2-year liberal arts colleges, university, etc). Our study is unique since it focuses on gift-giving alumni and alumni friends of the alma mater whose job titles (CEO/President to Manager) are exclusively *business executives*. The rich micro-panel data econometrically modeled here is a (20 percent) subset of some 2,000 individuals with annual gift-giving and personal histories from 1966 through late 1990s.

The rest of this paper proceeds as follows. Section 2 reviews pertinent literature. Section 3 focuses on the theory of giving, the data, and empirical model estimation method. Section 4 discusses the model findings, and section 5 concludes with summary, implications and future research directions.

2. *Literature review*

Past studies of alumni giving is multi-dimensional. They focused on private liberal arts colleges (Yoo and Harrison, 1989; Wunnava and Lauze, 2001;), private research universities (Marr, Mullin, and Siegfried; 2005), selective (highly selective) or elite private (research) universities and liberal arts colleges (Baade and Sundberg, 1996; Ehrenberg and Smith, 2003; Clotfelter, 2003; Monks, 2003;), major athletic (football, basketball) conference institutions (Rhoads and Gerking, 2000; Tucker, 2004), and Carnegie-classified comprehensive urban universities (Okunade, 1993; Okunade, Wunnava and Walsh, Jr., 1994; Okunade, 1996).

The research goals and findings of past studies also varied. Athletic (football, basketball) success rates raise alumni giving, beneficial tax reforms motivate alumni generosity, and the wealthy give more. Positive influence on alumni giving include satisfaction with the donor's undergraduate experience, Greek membership, income, graduation from the same institution where one first attended, graduating a second or more degrees from the same institution, knowledge of other gift-giving individuals, number of alumni relatives, alumni spouse, years since graduation, receipt of the institution's financial support during college years, employment within the financial sector or graduating in certain disciplines, residence in alumni chapter state, volunteering for the institution, and extensive publicity of reunions.

Charitable giving to colleges and universities also vary over the business cycle, males tend to give more, and alumni graduating with honors are highly likely to contribute.

3. *Theoretical model, data and estimation methods*

Charitable donation by individuals accords with alternative theories, including that of the economics of charity based on the theory of consumer demand for nondurables. The theory focusing on the price and income effects of voluntary charitable donations (Feldstein and Taylor, 1976) is empirically tested in Auten and Rudney (1986). Charity-giving individuals may also be driven by a sense of obligation to provide a public good for the society (Keating, 1981). Thirdly, some theory states that charitable contributors implicitly seek some utility-augmenting returns for self such as group membership or self-esteem. Colleges in effect attempt to maximize donations and donors seek to maximize recipient services (Yoo and Harrison, 1989). Becker's (1974) theory of interdependence of utility functions among unrelated individuals is another theory of personal charitable giving. These theories accord with that of utility maximization for donors.

The data are a sample of 372 individual observations of *business executive* donors, alumni and friends of the university, spanning 26 years (1970 – 1995). The panel data is a 20 percent sample of the population of donors from mid 1960s to late 1990s. Personal records include gender, full address of residence, contact telephones (home, work), job title and business location address of employer, the degree(s) earned from the university and graduation year, whether a honors graduate, other relatives and years graduated from the university, alumni activity involvements, (history of) marital status and family composition including age of children (or step children), Greek membership, annual giving history and whether designated for academic, athletic, or other uses, and other major organizations the prospect supports in donation or service on corporate boards.

Table 1 displays descriptive statistics of main variables used in empirical work. The institution of higher learning studied is located in East South Central US region (KY, AL, MS, and TN). Some 82 percent of the donors resided in the ESC region, 5.9 percent in the South Atlantic region states (DE, MD, DC, WV, VA, NC, SC, GA, and FL), 2.6 percent in East North Central region states (WI, MI, IL, IN, and OH) and the balance in other US Bureau of the Census regions other than New England (NH, VT, ME, MA, and RI).

Roughly 83 percent of the sample are male, 79 percent are married, 53 percent of alumni are affiliated with Greek organizations, 67 percent graduated from the alma mater, 20 percent held the job title of CEO/President, 49 percent knew of other alumni and friends of the alma mater, and the typical donor is involved in more than one alumni activities.

Received theory and past empirical research leads us to specify the following empirical regression model[1] of gift-giving business executive alumni and alumni friends of the public, urban, comprehensive university:

$$\begin{aligned} LnDON_{it} = \alpha_o &+ \beta_1 MALE_{it} + \beta_2 MARRD_{it} + \beta_3 GREEK_{it} + \beta_4 ALUMN_{it} + \beta_5 PRESI_{it} \\ &+ \beta_6 ALACT_{it} + \beta_7 NRELF_{it} + \beta_8 NRELF^2_{it} + \beta_9 \mathit{ESC\ Regional\ Dummy}_{it} \\ &+ [\text{Vector of Time-Series Dummies}]\, \boldsymbol{\kappa} + \xi_{it} \end{aligned}$$

where i = 1,2,….376 (i.e., number of donors) and t = 1970, 1971,…1995 (i.e., 26 time periods) Greek symbols with specific regressors are the regression parameters to be estimated and ξ is the error term.

4. *Preliminary empirical results*

Table 2 reports the regression estimates of the giving model of executive alumni and alumni friends of the alma mater. Results of the variables 'male' and 'social Greek membership' accord with received theories and past research findings of alumni giving in private and public higher education. More specifically, donations[2] to the university by business executives fell precipitously from 1978 through 1988 (largely The 'Regan' years) compared with 1970 (the base) – i.e., donations pattern seem to be pro-cyclical. Donors in the Pacific region states gave significantly less relative to residents in the Mid Atlantic region states (the base).

The 11.28 percent explanatory power of the estimated model (Table 2) is highly significant at the 0.00001 level (overall model *F*=36.02). The finding that males gave

[1] Preliminary runs indicating high degree of multicollinearity prevented the testing of the role of alumni 'chapter' states and the 'presidential' party affiliation on giving. Specifically chapter states were highly collinear with census region dummies, and presidential party affiliation with time-series dummies.

[2] See the estimates of time-series dummies.

roughly 20 percent more than females is highly significant and theoretically consistent with the *a priori* expectation of males having a higher lifetime earnings (resource) profile compared with females. Relative to non-Greeks, fraternal organizational membership raises donations significantly some 6.5 percent, alumni donors significantly contribute 27.95 percent more compared with non-alumni friends of the alma mater, and involvement in post-graduation alumni activities raised donations the most by roughly 22.5 percent. The scope of social networks, defined as the number of other alumni and friends of the university known to donor, evaluated at the sample data means, is a highly potent driver of giving to the tune of 15.4 percent ($\partial \ln DON / \partial NRELF = 0.12588 + 2*0.0281\ (0.491832) = 0.1468$). Finally, a higher-order executive job title does matter. Our results indicate that corporate CEOs and Presidents, relative to their subordinate title holders, donate about 9.4 percent more – a highly significant amount.

5. *Summary conclusion, implications, and future research*

This paper presented an econometric model of gift-giving alumni and alumni friends of the alma mater of a large comprehensive urban university, using micro-data sample of 9,672 donors (372 individuals spanning 26 years (1970 – 1995)). Our study findings reinforce the robust results of the earlier models of alumni giving of four year colleges and universities, private and public, in that donations rise positively with male gender (about 20 percent in this case), membership in Greek clubs, that is fraternities and sororities, (6.5 percent), and the number of other alumni and friends the donor knows raised giving at an increasing rate to the tune of 14.6 percent.

There are *two* major innovative determinants of giving to the alma mater first examined in this paper, namely the roles of higher-order job titles (theoretically correlated with ability to give due to expanded resource base) and the number of alumni activities in which donors engaged post-graduation. Our findings show that, for the sample analyzed, donors having the CEO and President as job titles raise giving some 9.46 percent relative to those with lower job titles. This is a novel finding and it accords with *a priori* expectation. Moreover, the intensity of alumni engagement in activities connected to the alma mater raises donations significantly to the tune of 22.5 percent compared with the disengaged alumni.

Several implications of the findings are in order. Particularly in times when solicitation efforts are resource-constrained, the institution should target donors fitting the profile of individuals favoring donations (male, CEOs and Presidents, alumni that engage in post-graduation activities with the alma mater, and those who know others, alumni and friends, that give). All else equal, due to a multiplicity of factors, the institution can expect reduced donations in recessionary times and when a US president is a declared Republican.

Our findings are *preliminary*. Plans to advance this research include (i) extending the time-series dimension to capture multiple business cycle effects (Okunade, 1994), and incorporating (ii) a measure of median household housing value in donor's residential zip code (as proxy for permanent income), (iii) median family income in residential zip codes of the donors (as proxy for income), (iv) industry of employment dummies (as proxy for occupation-related income), (v) disaggregating 'other job titles' into vice-president, senior manager, etc to capture gradation of titles and their effects on giving, and (vi) linking place of employment to whether employers match giving to the university. The executive alumni data base contains almost 2,000 donors dating back to the early 1960s. Inclusion of all donors might make for a richer analysis of frequent *versus* infrequent donors (Wunnava and Lauze, 2001), as their profiles are likely to differ. Finally, the role of the university's successful basketball and football seasons as motivator of donations will be examined, barring the collinearity issues in model estimation.

TABLE 1: Descriptive Statistics of the basic data

VARIABLE	NOBS	MEAN	STD. DEV.	VARIABLE DESCRIPTION
LNDON	9672	.9372257	1.707653	Log(donation + $1)
MALE	9672	.827957	.3774373	Donor gender is male (=1)
MARRD	9672	.787531	.4090761	Donor is married (=1)
GREEK	9672	.5292597	.4991689	Alumni member of Greek (=1)
ALUMN	9672	.672043	.4694933	Donor is alumni (=1)
PRESI	9672	.1962366	.3971701	Donor is CEO/President (=1)
ALACT	9672	1.261166	1.082393	Number of alumni activities
NRELF	9672	.4918321	.9851212	Number of alumni relatives and friends known
ESC	9672	.8198925	.3842969	East South Central = 1 if donor is from this Census region

TABLE 2: Regression Estimates

Dep. var: LNDON	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
male	.194545	.045321	4.29	0.000	.1057064	.2833836
marrd	.0309357	.0422076	0.73	0.464	-.0518002	.1136715
greek	.0649038	.0379842	1.71	0.088	-.0095532	.1393609
alumn	.2795337	.0373025	7.49	0.000	.206413	.3526545
presi	.0946617	.042648	2.22	0.026	.0110627	.1782607
alact	.2251517	.0187019	12.04	0.000	.188492	.2618114
nrelf	.1181435	.0358045	3.30	0.001	.0479592	.1883277
$nrelf^2$	.0291723	.0073158	3.99	0.000	.0148318	.0435129
ESC	-.090543	.0442351	-2.05	0.041	-.177253	-.003833

Time Effects: Year Dummies (base category [ts_1=1970])**

ts_2	.0272214	.1181494	0.23	0.818	-.2043762	.2588189
ts_3	.0911482	.1181494	0.77	0.440	-.1404494	.3227457
ts_4	-.0089515	.1181494	-0.08	0.940	-.2405491	.222646
ts_5	-.1502515	.1181494	-1.27	0.204	-.3818491	.081346
ts_6	-.1319801	.1181494	-1.12	0.264	-.3635777	.0996174
ts_7	-.1561853	.1181494	-1.32	0.186	-.3877828	.0754123
ts_8	-.1629843	.1181494	-1.38	0.168	-.3945819	.0686133
ts_9	-.3168121	.1181494	-2.68	0.007	-.5484096	-.0852145
ts_10	-.3993246	.1181494	-3.38	0.001	-.6309222	-.1677271
ts_11	-.404076	.1181494	-3.42	0.001	-.6356736	-.1724785
ts_12	-.3991305	.1181494	-3.38	0.001	-.6307281	-.167533
ts_13	-.3132604	.1181494	-2.65	0.008	-.544858	-.0816628
ts_14	-.3118086	.1181494	-2.64	0.008	-.5434061	-.080211
ts_15	-.2009933	.1181494	-1.70	0.089	-.4325909	.0306043
ts_16	-.2560724	.1181494	-2.17	0.030	-.4876699	-.0244748
ts_17	-.258863	.1181494	-2.19	0.028	-.4904605	-.0272654
ts_18	-.2234803	.1181494	-1.89	0.059	-.4550778	.0081173
ts_19	-.165217	.1181494	-1.40	0.162	-.3968146	.0663805
ts_20	.0330592	.1181494	0.28	0.780	-.1985384	.2646568
ts_21	.1585881	.1181494	1.34	0.180	-.0730095	.3901856
ts_22	.5601916	.1181494	4.74	0.000	.3285941	.7917892
ts_23	.597843	.1181494	5.06	0.000	.3662454	.8294406
ts_24	.5855045	.1181494	4.96	0.000	.353907	.8171021
ts_25	.1173519	.1181494	0.99	0.321	-.1142457	.3489494
ts_26	-.4622485	.1181494	-3.91	0.000	-.6938462	-.2306508
_cons*	.2905333	.1025874	2.83	0.005	.0894403	.4916262

Number of observations = 9672 Adj. R^2= 0.1096 Root MSE = 1.6113

Overall Significance: F(34, 9637) = 36.02 (p= 0.0)

Joint Significance F**(25, 9637)=12.71 (p = 0.0)

* The regression estimates are relative to the base donors in 1975 that are (female, non-married, non-Greek member, non-alumni friends of the alma mater, non-CEO/President job title, uninvolved in alumni activities, and reside not ESC census region). Please refer to Table 1 for variable descriptions.

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