Do Business Executives Give More to Their Alma Mater? Longitudinal Evidence from a Large University

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ABSTRACT. The novel contribution of this research is the examination of the gift-giving patterns of alumni *business executive*s of a large urban public university. Our results reinforce the earlier findings that male alumni in Greek social organizations gave more to their alma mater. New insights unique to this study are that alumni with the higher-order executive job titles are more charitable. Further, the number of known other gift-giving alumni and friends seems to positively impact giving. The national athletic championship wins are also significant positive drivers of alumni giving in the championship year, as well as in the succeeding nonchampionship year.

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Introduction

U.S. public higher educational institutions increasingly depend on private and other nongovernmental sources of support for their academic and related programs as the funding priorities of states change (for example, more towards Medicaid, public safety, and K-12 education), endowment incomes lag behind operating costs, and public higher education steadily moves from publicly supported to publicly assisted economic entities (Bristol Jr. 1990; Okunade 2004). The rising number of alumni of colleges and universities is an increasingly vital source of recurrent financial support (Mann 2007). Giving to annual fundraising campaigns is an important source of unrestricted funds for colleges and universities, constituent schools, and programs. Alumni giving can offset some of the declines in tax-funded appropriations for student scholarships and distinguished faculty retention (Eicher and Chevaillier 2002). Colleges and universities further target increased alumni charitable gifts as leverage for raising the likelihood of receiving greater corporate and foundation gifts. Charitable giving constitutes about 9 percent of higher education revenues (The Giving Institute 2006).

The Giving Institute (2006) reported that in 2001, individual donors gave roughly \$160.72 billion in charitable donations, and that 75.8 percent of all giving that year was from four major sources (living individuals, bequests, 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 the average household after-tax disposable income for that year. Alumni donation, historically the largest share (or 25 percent) of private giving, totaled \$5.8 billion in 2002. Individual gifts from nonalumni rose 3.8 percent to \$5.4 billion in 2002, according to RAND's Council for Aid to Higher Education (2003). The sharp decline in alumni donations in 2002 quickly rebounded with a growth of 11.9 percent, but overall voluntary support for higher education remained at the \$23.9 billion 2002 level. Charitable giving to higher education historically grows in a strong economy but tends to be stable in downturns (Council for Aid to Education 2006).1 According to the annual Voluntary Support of Education (VSE) survey released by the Council for Aid to Education (2012), it is indeed gratifying that alumni are still playing a significant role in supporting their respective alma maters. For instance, in 2011, alumni contributed \$7.8 billion as compared to \$7.1 billion in 2010, which translates to 6.4 percent higher giving in real terms.²

Therefore, this article motivates the construction and estimation of an econometric model of the determinants of voluntary giving of alumni business executives. It examines the patterns that emerge when looking at how these individuals contribute to the annual funds of a large anonymous public university in a metropolitan setting of more than 1 million residents in a U.S. Census region. Past, related research probed alumni giving in a private, public, small, medium, large, two- or four-year liberal arts college or university setting. Our study takes a different angle, uniquely focusing on the annual gift giving of business executive graduates of the alma mater and captures the impact of different executive job titles (for example, CEO/President, Manager) on annual charitable giving. The rich micro-panel data econometrically modeled are about 22 percent of the 1,800 gift-giving alumni, covering the period from 1970 to the mid 1990s.

The remainder of this article proceeds as follows. The next section reviews the pertinent literature followed by a discussion on the theory of giving, the data, and empirical methodology. The final section revisits the core research findings of our work along with their implications, general conclusions, and possible directions for future studies.

Literature Review

Past studies³ of alumni charitable giving are multidimensional. These studies generally focused on single, private liberal arts colleges (Yoo and Harrison 1989; Wunnava and Lauze 2001), private research universities (Marr, Mullin, and Siegfried 2005), selective and highly selective or elite research universities and liberal arts colleges (Baade and Sundberg 1996; Ehrenberg and Smith 2003; Clotfelter 2003; Monks

2003; Holmes 2009), major athletic (basketball or football) conference institutions (Rhoads and Gerking 2000; Tucker 2004), and Carnegie-classified anonymous research institutions of higher learning (Okunade 1993; Okunade, Wunnava, and Walsh Jr. 1994; Okunade 1996; Meer and Rosen 2009a).

The study goals and findings of past research largely reinforce each other, but sometimes vary, depending on the study objectives, research designs, data structures, and econometric model estimation methods. This notwithstanding, the general findings are that recent or historical national athletic wins in football and basketball correlate positively with alumni giving (Grimes and Chressanthis 1994), but the influence of athletics may differ by gender (Meer and Rosen 2009b). Beneficial tax code reforms enhance alumni gift-giving generosity (Feldstein 1975; Clotfelter 2003; Holmes 2009), and alumni personal resources (income and/or wealth) are catalysts for gift giving (Olsen, Smith, and Wunnava 1989; Bruggink and Siddiqui 1995). Furthermore, positive drivers of alumni giving include donors' satisfaction with the undergraduate experience or campus Greek organization (Okunade, Wunnava, and Walsh Jr. 1994; Bruggink and Siddiqui 1995; Wunnava and Lauze 2001), having alumni relatives (Wunnava and Lauze 2001), years since graduation (Grant and Lindauer 1986), receipt of the institution's financial support during the college years (Marr, Mullin, and Siegfried 2005), employment in the financial sector or graduating in specific study fields (e.g., the field of business finance) (Wunnava and Lauze 2001), residing in an alumni chapter state (Wunnava and Lauze 2001), volunteering at the alma mater (Weerts and Ronca 2007; Meer and Rosen 2009a), and extensive publicity of reunion year celebrations (Grant and Lindauer 1986; Olsen, Smith, and Wunnava 1989). Finally, alumni gift giving to the alma mater also tends to vary over the business cycle phases (Okunade, Wunnava, and Walsh Jr. 1994), males tend to donate more over their lifetimes (Adelman 1991; Rienzi, Allen, Sarmiento, and McMillin 1993; Bruggink and Siddiqui 1995; Whitaker 1998; Wunnava and Lauze 2001; Umbach and Porter 2002; Meer and Rosen 2009b), and alumni with the honors designation at graduation (Okunade, Wunnava, and Walsh Jr. 1994; Okunade 1996) are highly more likely to be charitable.

Theoretical Model, Data, Empirical Methodology, and Discussion

The theoretical underpinnings of charitable giving at the individual or household level accord with a number of alternative propositions, including the economics of charity based on the theory of consumer demand for nondurables. Auten and Rudney (1986) empirically tested the Feldstein (1975) theory on the price and income effects of voluntary charitable giving. In addition, charitable individuals may also be driven by a sense of obligation to provide a public good to society (Keating, Pitts, and Appel 1981; Clinton 2007). Furthermore, some theory posits that charitable donors implicitly seek utility-augmenting returns (such as group membership or self-esteem) or to raise the future likelihood of a child's admission to the alma mater (Meer and Rosen 2009a). Hall (2004), for instance, contends that men tend to give in order to enhance their own social standing in the community and that women contribute to charitable causes to promote social change or assist the less fortunate. In effect, colleges (recipients) behave as if they seek to maximize donation resource inflow, while the gift-givers (donors) act as if they seek to maximize returns, including recipient services (Yoo and Harrison 1989). Becker's (1974) theory of the interdependence of utility functions among unrelated economic actors offers another theory of personal charitable giving. These contending theories agree with the tendencies of donors to seek maximization of utilities for self, others, or both.

The study data are a balanced panel of 394 individual gift-giving *business executive* alumni donors of the university for 26 years (1970–1995). Personal donor data include gender, professional job titles, the degree(s) earned from this university including year(s) of graduation, postgraduation alumni activities, the number of other gift-giving alumni and friends known to the donors, Greek membership, and annual giving history. Further, archival data on the university's national athletic successes or championships in basketball and football were obtained from online sources. Table 1 contains descriptive statistics of the main variables used in the empirical work.

The institution of higher learning studied is a comprehensive research university located in the East South Central (*ESC*) U.S. Census region. During the period this study covers, 83.4 percent of the donors

Table 1 **Descriptive Statistics** (n = 10,244 person observations)

Variable	Mean	Std. Dev.	Variable Definition
ln_rdon	0.9781973	1.919676	natural logarithm of (real donation); in case of "zero" giving a value of \$1 is assigned to enable to take the natural logarithm
Male	0.8756345	0.330014	1 if male; 0 otherwise
Greek	0.6849863		1 if fraternity member; 0 otherwise
SeniorExec	0.2538071	0.435209	1 if alumni is CEO/President; 0 otherwise
Alactv	1.573799	1.035502	# of alumni activities
Numrelf	0.7900234	1.188942	number of gift-giving relatives and friends known
Champ	0.3461538	0.475766	= 1 if won a basketball or football championship in a given year; 0 otherwise
$Non_Champ_{(t+1)}$	0.1153846	0.3195011	= 1 if have NOT won a basketball or football championship within one year following a championship year; 0 otherwise
$Non_Champ_{(t+2)}$	0.1538462	0.3608188	= 1 if have NOT won a basketball or football championship within <i>two</i> years following a championship year; 0 otherwise
ESC	0.8350254	0.3711758	1 if donor resided in East South Central U.S. Census region; 0 otherwise

resided in this region, 87.6 percent of the sample is Male, 68.5 percent of the alumni sample were affiliated with campus Greek (fraternity, sorority) organizations, 25.4 percent of the sample held the senior career job title of CEO or President (SeniorExec), the typical donor was engaged in 1.57 postgraduation alumni activities at the alma mater (Alactv), and the number of other gift-giving alumni and friends known (Numrelf) to a typical donor is about .8. Finally, Champ is a 0-1 dummy capturing the gift-giving effect of the university winning a national championship in basketball and/or football in a given year. To capture the possible lead effect of winning a sports championship, the empirical model is further augmented by incorporating Non Champ lead dummies. The dependent variable, the log of real annual donation (In_rdon) for academic purposes, includes restricted and unrestricted alumni gifts to the university or a specific constituent school, college, or academic area. These annual gifts are aimed at supporting and promoting priority institutional excellence in defined critical areas of need and do not include donations at death. 5 Based on the pertinent literature on some of the key variables, 6 the following is our empirical model:7

$$\begin{aligned} ln_rdon_{it} &= \alpha_0 + \beta_1 \ Male_{it} + \beta_2 \ Greek_{it} + \beta_3 \ SeniorExec_{it} + \beta_4 \ Alactv_{it} + \\ \beta_5 \ Numrelf_{it} + \beta_6 \ Champ_{it} + \beta_7 \ Non_Champ_{i(t+1)} + \\ \beta_8 \ Non_Champ_{i(t+2)} + \beta_9 \ ESC_{it} + \\ [Vector of \ TIME-SERIES \ DUMMIES] \mathbf{\kappa} + \xi_{it} \end{aligned}$$

where, $i = 1, 2, \dots 394$ (i.e., number of person-specific donors) and $t = 1970, 1971, \dots 1995$ (that is, 26 annual periods); ξ is the error term. The vector of *TIME-SERIES DUMMIES* (=1 for a specific year, 0 otherwise) are included in the model as year-specific controls (i.e., a proxy for business cycle effects) on giving.

The main regression results are presented in Table 2. The overall fit of the estimated model is highly significant ($\chi^2_{(30)} = 1807.79$ with p-value = 0.0000). The finding that alumni males (Male) gave almost 9 percent more than females is both significant and theoretically consistent with the *a priori* expectation of males having a higher lifetime earnings (resource) profile relative to females. Compared to the non-Greeks, fraternal organization alumni membership (Greek) significantly increased donations by roughly 5.6 percent. Our results

Table 2

Cross-Sectional Time-Series Feasible Generalized Least
Squares Estimates Dependent variable: ln_rdon
(log of real donation in \$)

Variable	Estimated coefficient	Z statistic	p-value
Male	0.0891551	2.53	0.011
Greek	0.056187	1.95	0.051
SeniorExec	0.0635376	1.85	0.065
Alactv	0.2053615	12.04	0.0
Numrelf	0.1811854	10.97	0.0
Champ	0.5961199	7.21	0.0
$Non_Champ_{(t+1)}$	0.9745436	11.79	0.0
$Non_Champ_{(t+2)}$	-0.5014662	6.07	0.0
ESC	-0.125768	3.44	0.001
Time Dummies [^]	included	_	
Constant [+]	-0.2611963	3.21	0.001

N = 10,244

Overall Model Significance [Wald χ^2]_{30 degrees of freedom} = 1807.79***

[+] The base category consists of donations given by females in 1970–1972, 1992, and 1995, who are non-Greek organization members, have no knowledge of the donations made by alumni relatives/friends, hold non-CEO/President job titles, are uninvolved in alumni activities, reside outside of the ESC (East South Central) U.S. Census region, and gave in years in which the university did not win a national collegiate basketball or baseball championship.

further indicate that alumni senior executives (that is, corporate CEOs and Presidents) donated 6.3 percent more, relative to alumni holding subordinate seniority titles. Past research using individual-level data on alumni giving uniformly omitted a direct income measure. In this article, higher-order executive job titles capture more than the effect of income on giving because it is used to proxy permanent income. This is consistent with the theory that consumption planning is based on permanent rather than current income. Moreover, engagement in postgraduation alumni activities of the alma mater (*Alactv*) raised average donations by roughly 20.5 percent. The estimated coefficient

^[^] Joint Significance of Time Dummies [Wald χ^2]_{21 degrees of freedom} = 935.6*** p < 0.001

for the number of relatives and friends known variable (Numrelf), intended to proxy the donation effect of alumni social networks, is associated with about an 18.1 percent rise in annual giving. This finding agrees with evidence in some recent empirical studies using a similar variable to capture the "lineage effect" on giving (for example, Wunnava and Lauze 2001; Holmes, Meditz, and Sommers 2008). Consistent with the limited research evidence on the role of collegiate national athletic success on giving, our results confirm that donations tend to rise significantly in years that the alma mater won national basketball and/or football championship(s). Specifically, years of highly successful national athletic championships (Champ), which both broaden and deepen the institution's national exposure, significantly raised alumni giving (that is, $\partial \ln rdon / \partial Champ = 0.5961$ is highly significant).8 In other words, the championship years, on average, are associated with an 82 percent higher level of alumni donations⁹ than the typical nonchampionship years. To capture the length of time the championships may have an impact on the future giving of nonchampionship seasons, the model incorporated two additional lead dummy variables¹⁰ Non_Champ_(t+1), and Non_ Champ(1+2). Using the same approach as before, the estimated coefficients indicate that alumni giving in a nonchampionship year following a championship season led to 165 percent *increase*¹¹ in donations. However, an additional nonchampionship year could lead to a 40 percent decrease¹² in alumni giving. These findings are statistically significant.

Donors in the *ESC* region states gave significantly less relative to those in other U.S. Census regions—perhaps due to a lack of commitment, the less than national average per capita earnings, and other location-specific factors in the *ESC* region¹³ that inversely correlate with giving. Moreover, annual alumni giving of the business executives to their alma mater grew steadily during the 1980s and 1990s relative to the 1970s, and the giving pattern has tended to be pro-cyclical.¹⁴

Superior athletics programs enrich student life quality and learning environments. Concerning the national media (audio-visual, online, and print) exposure factor, athletics programs with a consistent history of championships raise marketability of the institution's athletics and

academic programs, alumni donations, and student applications for admission. Using data across institutions, Tucker (2005), found that publicizing success of college football¹⁵ programs had a positive impact on SAT scores of incoming freshmen. Donations rose 47 percent from 1999 to 2000, following the arrival of a top-notch men's basketball coach at the studied school. This signals that other favorable athletics news is capable of raising donations to the alma mater. Moreover, athletics donations and university applications at the studied institution consistently rose since the basketball team made it to the Elite Eight. More specifically, donations due to athletics rose 4 percent in 2006, and another 10 percent in 2007, during which the university had strong national showings in athletics. This evidence is consistent with a 2004 nationwide study finding a transitory rise in alumni giving after a conspicuously successful athletics season.

The study goal was to search for the most practical drivers (that is, modifiable predictors) of annual alumni giving and, more specifically, those that fall within the university administration's control. One of the relevant implications in this context would be to make cost-minimizing investments in athletic programs that have a high probability of winning national championships. Moreover, the alma mater should consistently implement strategic initiatives (for example, learning communities, homecoming celebrations) aimed at elevating students' life-long attachments to the alma mater. Establishing high-value leadership gifts (List and Rondeau 2003), a commitment designed to challenge others to give, can be a highly potent catalyst for spurring further contributions to annual capital campaigns.

Conclusion and Implications

This article motivated, constructed, and estimated an econometric model of annual gift-giving alumni of a large comprehensive urban university. The model used a micro-panel sample of 10,244 person-observations (394 donors spanning 26 years) for whom complete data were available. Our study findings reinforce the robust results of earlier research on alumni giving of four-year colleges and universities, private and public, in that donations rise positively and significantly with the male gender (9 percent in this case), membership in

Greek (fraternities and sororities) clubs (5.6 percent), and alumni engagements in postgraduation activities of the alma mater (20.5 percent).

There are at least two uniquely innovative determinants of annual giving to the alma mater first entertained in this article. The first is an exclusive focus on the gift giving of alumni business executives. The second is the significant role of the theoretically more relevant higher-order job titles that reliably correlate with resource-based "ability to give" (or permanent income). Presumably, this is due to expanded access to personal and corporate (for example, matching gift policies) resources. Our findings confirm that, for the studied data, alumni with higher-grade CEO or President job titles gave 6.4 percent more in donations compared with those with lower job titles (managers, etc.). This study uses sports success data of this university for the first time. It confirms the critical importance of national sports championship wins (basketball or football) as a generator of the significant rise (\approx 82 percent) in annual giving to the alma mater. These new and insightful findings have fundamentally important implications.

Most donors at the studied institution reside in the ESC U.S. geographic Census region, which is economically less well-off than the rest of the regions. This engenders lower alumni giving levels. It would be prudent to launch fundraising campaigns appealing to business executive alumni in more affluent parts of the United States and the rest of the world (for example, in Asia and Western Europe). This strategy is suggestive of Michael (2007), who calls for wealthy donors who would ordinarily give to highly affluent institutions to redirect their large donations to the anemically funded schools. This thought, based on the rudimentary but powerful law of diminishing returns in economics, contends that the marginal productivity of a dollar gift would confer a greater positive benefit on the academic quality of a cash-strapped institution rather than a wealthy one. This increasingly emerging strategy is also in line with the Council for Aid to Education in New York (2006) reporting that contributions to higher education by nonalumni rose 14 percent in 2006 to \$5.7 billion, compared with alumni giving \$8.4 billion to their alma mater. More specifically, the less-prosperous schools are rapidly relying on gifts from outside of their alumni base than their own graduates (Seward 2007). The nonalumni gift-givers to the les-wealthy colleges and universities tend to obtain reciprocal personal recognition (i.e., self-esteem) at a significantly discounted cost in return.

Particularly in current times when fundraising solicitation efforts are more tightly resource-constrained, the institution should target alumni donors who possess attributes that are likely to increase donations (male, CEOs and Presidents, alumni engaging in postgraduation associations with the alma mater). Finally, it would be tactical for the institution of higher learning to strike an optimal balance between excellence in academic and athletic goals in order to attract a wide range of donors.

Notes

- 1. The ongoing recessionary economy with a very slow recovery rate is an exception. Higher education philanthropy has fallen in tandem with a host of most other destinations for charitable giving at the individual level. Interestingly, giving to religious organizations has risen during the current recessionary phase of the global business cycle.
- 2. See Appendix A for a tabular summary of estimated support of higher education by source and purpose for 2010–2011.
- 3. While the focus here is on giving to higher education, there is voluminous research in the general area of philanthropy. A recent study by Bekkers and Wiepking (2011) provides an excellent and extensive literature survey. It covers nearly 500 works and identifies the different mechanisms motivating donors to make contributions to their preferred charitable causes. Among the causes they identified, "altruism," "reputation," and "psychological benefits" are the three that tend to prompt contributions to higher educational institutions. Mann's (2007) motives for charitable giving encompass the following theoretical foundations: "charitable giving," "organizational identification," "social identification," "services-philanthropic giving," "economic" and "relationship-marketing." On a more careful examination, Mann's (2007) typology is in reality a finer decomposition of the Bekkers Wiepking (2011) framework. Showers, Showers, Beggs, and Cox Jr. (2011) showed that religious giving and educational giving could coexist and need not be substitutes. However, James and Sharpe (2007) caution against treating charitable giving to religious and secular purposes on the same footing (that is, as a homogenous activity).
- 4. Our use of higher-order executive job titles is more likely to capture the importance of a donor's years of accumulated career experience and growth of compensation (earnings and benefits). Taken together, these would

tend to strengthen gift-giving tendencies more than current income (a measure that is typically unavailable). Our novel measure in this study captures the broadened resource base of the gift-giving individual alumni business executives. This is fully consistent with the basic microeconomic prediction of consumption smoothening that makes the use of a permanent income proxy more relevant in this line of work. See, for example, Okunade, Suraratdecha, and Benson (2010).

- 5. The research to date regarding the link between estate-tax rates and charitable donations distributed at death is mixed. However, a recent study by Beranek et al. (2010) provides strong evidence of an "increasing-donation hypothesis" (i.e., an inverse relationship between estate-tax rates and charitable donations).
- 6. For example, gender differences (Adelman 1991; Rienzi, Allen, Sarmiento, and McMillin 1993; Bruggink and Siddiqui 1995; Whitaker 1998; Wunnava and Lauze 2001; Umbach and Porter 2002; Meer and Rosen 2009b); Greek membership (Okunade, Wunnava, and Walsh Jr. 1994; Bruggink and Siddiqui 1995; Wunnava and Lauze 2001); alumni volunteering and family connections (Wunnava and Lauze 2001; Weerts and Ronca 2007; Meer and Rosen 2009a); sports successes (Grimes and Chressanthis 1994; Holmes, Meditz, and Sommers 2008; Meer and Rosen 2009b).
- 7. Given the longitudinal nature of the data, appropriate tests were conducted to test for the possible presence of heteroscedasticity and autocorrelation. The likelihood ratio procedure suggested by Wooldridge (2002) to test for heteroscedasticity (that is, different error variances across donors) yielded an observed chi-square value (with 393 degrees of freedom) = 3649.82, which indicates a very high significance. However, the testing for autocorrelation also suggested by Wooldridge (2002) could not be conducted due to the time-invariant nature of some of the controls (such as gender dummy). Accordingly, the reported econometric results in the article are cross-sectional time-series feasible generalized least squares results that are corrected for heteroscedasticity.
- 8. Given the fitted log-linear functional form empirical model and the magnitude of the coefficient *Champ* being greater than .25, an intuitive way to interpret this coefficient is to evaluate $e^{\beta} 1$ (that is, $e^{0.5961} 1 = 0.815$ or ≈ 82 percent).
- 9. Holmes, Meditz, and Sommers (2008) found that winning sports could simultaneously lead to greater propensity to give and increased generosity of alumni contributions.
- 10. $Non_Champ_{(t+1)} = 1$ if have NOT won a basketball or football championship within *one* year following a championship year; 0 otherwise. $Non_Champ_{(t+2)} = 1$ if have NOT won a basketball or football championship within two years following a championship year; 0 otherwise.
 - 11. $e^{0.9745436} 1 = 1.6499$ or ≈ 165 percent.

- 12. $e^{-0.5014662} 1 = -0.3944$ or ≈ -40 percent.
- 13. Holmes (2009) documented that the availability of tax deduction provisions in a given state could positively impact the propensity to donate as well as the actual amount given. In this context, AL and TN do not have a tax deduction provision but KY and MS have a tax deduction provision.
- 14. This finding is based on the time-series dummies (that is, year fixed effects) included in the model. The joint significance test of the time-series dummies, designed to capture the business cycle impacts on annual giving, is displayed at the bottom of Table 2. However, the actual regression coefficients of these time-series dummies are not included in Table 2. These results can be obtained on request.
- 15. These results did not hold for a successful basketball program. Turner, Meserve, and Bowen (2001) found that at Division IA schools and at Ivy League schools, there is no guarantee that football successes would translate to higher giving. However, they found a modest positive effect at Division III colleges of a successful football program.

References

- Adelman, C. (1991). Women at Thirty Something: Paradoxes of Attainment. Washington, DC: U.S. Government Printing Office.
- Auten, G., and G. Rudney. (1986). "Donating Appreciated Property After Tax Reform." *Tax Notes* 20(October): 285–289.
- Baade, R. A., and J. O. Sundberg. (1996). "What Determines Alumni Generosity?" *Economics of Education Review* 15(1): 75–81.
- Becker, G. S. (1974). "A Theory of Social Interactions." *Journal of Political Economy* 82: 1063–1093.
- Bekkers, R., and P. Wiepking. (2011). "A Literature Review of Empirical Studies of Philanthropy: Eight Mechanisms that Drive Charitable Giving." *Non-profit and Voluntary Sector Quarterly* 40(5): 924–973.
- Beranek, W., D. R. Kamerschen, and R. H. Timberlake. (2010). "Charitable Donations and the Estate Tax: A Tale of Two Hypotheses." *American Journal of Economics and Sociology* 69(3): 1055–1078.
- Bristol, Jr., R. B. (1990). "The Life Cycle of Alumni Donations." *Review of Higher Education* 13(4): 503–518.
- Bruggink, T. H., and K. Siddiqui. (1995). "An Econometric Model of Alumni Giving: A Case Study for a Liberal Arts College." *American Economist* 39(2): 53–60.
- Clinton, B. (2007). *Giving: How Each of Us Can Change the World.* New York: Alfred A. Knopf.
- Clotfelter, C. T. (2003). "Alumni Giving to Elite Private Colleges and Universities." *Economics of Education Review* 22: 109–120.

- Council for Aid to Education. (2006). *Contributions to Colleges and Universities Up by 4.9 Percent to \$25.6 Billion*. New York: CAE (Press Release February 16, 2006).
- ——. (2012) Colleges and Universities Raise \$30.3 Billion in 2011. New York: CAE (Press Release February 15, 2012).
- Ehrenberg, R. G., and C. L. Smith. (2003). "The Sources and Uses of Annual Giving at Selective Private Research Universities and Liberal Arts Colleges." *Economics of Education Review* 22: 223–235.
- Eicher, J. E., and T. Chevaillier. (2002). "Rethinking the Financing of Post-Compulsory Education." *Higher Education in Europe* 27: 69–88.
- Feldstein, M. (1975). "The Income Tax and Charitable Contributions: Part III—The Impact on Religious, Educational and Other Organizations." *National Tax Journal* 28: 209–226.
- Grant, J. H., and D. Lindauer. (1986). "The Economics of Charity Life-Cycle Patterns of Alumnae Contributions." *Eastern Economic Journal* 2: 129–141.
- Grimes, P. A., and G. A. Chressanthis. (1994). "Alumni Contributions to Academics: The Role of Intercollegiate Sports and NCCA Sanctions." *American Journal of Economics and Sociology* 53(1): 27–40.
- Hall, H. (2004). "Gender Differences in Giving: Going, Going, Gone?: Fundraising as a Profession: Advancements and Challenges in the Field." New Directions for Philanthropic Fundraising 43(Special Issue): 71–81.
- Holmes, J. A. (2009). "Prestige, Charitable Deductions and Other Determinants of Alumni Giving: Evidence from a Highly Selective Liberal Arts College." *Economics of Education Review* 28: 18–28.
- Holmes, J. A., J. A. Meditz, and P. M. Sommers. (2008). "Athletics and Alumni Giving: Evidence from a Highly Selective Liberal Arts College." *Journal* of Sports Economics 9: 538–552.
- James, R. N., and D. L. Sharpe. (2007). "The 'Sect Effect' in Charitable Giving: Distinctive Realities of Exclusively Religious Charitable Givers." *American Journal of Economics and Sociology* 66(4): 697–726.
- Keating, B., R. Pitts, and D. Appel. (1981). "United Way Contributions, Coercion, Charity or Economic Self-Interest?" Southern Economic Journal 47: 816–823.
- List, J. A., and D. Rondeau. (2003). "The Impact of Challenge Gifts on Charitable Giving: an Experimental Investigation." *Economics Letters* 79(2): 153–159.
- Mann, T. (2007). "College Fundraising Using Theoretical Perspectives to Understand Donor Motives." *International Journal of Educational Advancement* 7(1): 35–45
- Marr, K. A., C. H. Mullin, and J. J. Siegfried. (2005). "Undergraduate Financial Aid and Subsequent Alumni Giving Behavior." *Quarterly Review of Economics & Finance* 45: 123–143.

- Meer, J., and H. S. Rosen. (2009a). "Altruism and the Child Cycle of Alumni Donations." *American Economic Journal: Economic Policy* 1(1): 258–286.
- ——. (2009b). "The Impact of Athletic Performance on Alumni Giving: An Analysis of Microdata" *Economics of Education Review* 28: 287–294.
- Michael, S. O. (2007). "Why Give to a College That Already Has Enough?" Chronicle of Higher Education (The Chronicle Review Section) 53(44): B10.
- Monks, J. (2003). "Patterns of Giving to One's Alma Mater Among Young Graduates from Selective Universities." *Economics of Education Review* 22: 121–130.
- Okunade, A. A. (1993). "Logistic Regression and Probability of Business School Alumni Donations: Micro-Data Evidence." *Education Economics* 1(3): 243–258.
- —... (1996). "Graduate School Alumni Donations to Academic Funds." American Journal of Economics and Sociology 55(2): 213–230.
- ——. (2004). "What Factors Influence State Appropriations for Public Higher Education in the United States?" *Journal of Education Finance* 30(2): 123–38.
- Okunade, A. A., C. Suraratdecha, and D. A. Benson. (2010). "Determinants of Thailand Household Healthcare Expenditure: The Relevance of Permanent Resources and Other Correlates." *Health Economics* 19(3): 365–376.
- Okunade, A. A., P. V. Wunnava, and R. Walsh Jr. (1994). "Charitable Giving of Alumni: Micro-Data Evidence from a Large Public University." *American Journal of Economics and Sociology* 53(1): 73–84.
- Olsen, K., A. Smith, and P. V. Wunnava. (1989). "An Empirical Study of the Life-Cycle Hypothesis with Respect to Alumni Donations." *American Economist* 33(2): 60–63.
- RAND. (2003). Council for Aid to Higher Education. Santa Monica, CA.
- Rhoads, T. A., and S. Gerking. (2000). "Educational Contributions, Academic Quality, and Athletic Success." *Contemporary Economic Policy* 18(2): 248–259.
- Rienzi, B. M., M. J. Allen, Y. W. Sarmiento, and J. D. McMillin. (1993). "Alumni Perception of the Impact of Gender on Their University Experience." *Journal of College Student Development* 34: 154–157.
- Seward, Z. M. (2007). "Rich Alumni Stiff Elite Alma Maters, Give to Needier Colleges." Wall Street Journal August 28: B1–B2.
- Showers, V. E., L. S. Showers, J. M. Beggs, and J. E. Cox Jr. (2011) "Charitable Giving Expenditures and the Faith Factor." American Journal of Economics and Sociology 70(1): 152–186.
- The Giving Institute. (2006). *Giving USA: The Annual Report on Philanthropy*. Glenview, IL: Giving USA Foundation.

- Tucker, I. B. (2004). "A Reexamination of the Effect of Big-Time Football and Basketball Success on Graduation Rates and Alumni Giving Rates." *Economics of Education Review* 23: 655–661.
- ——. (2005). "Big Time Pigskin Success: Is There an Advertising Effect?" Journal of Sports Economics 6(2): 222–229.
- Turner, S. E., L. A. Meserve, and W. G. Bowen. (2001). "Winning and Giving: Football Results and Alumni Giving at Selective Private Colleges and Universities." *Social Science Quarterly* 82(4): 812–826.
- Umbach, P. D., and S. R. Porter. (2002). "How Do Academic Departments Impact Student Satisfaction?" *Research in Higher Education* 43(2): 209–234.
- Weerts, D. J., and J. M. Ronca. (2007). "Profiles of Supportive Alumni: Donors, Volunteers, and Those Who 'Do It All'." *International Journal of Educational Advancement* 7: 20–34.
- Whitaker, Y. N. (1998). How Gender, Age and Program Influences Alumni Giving. Detroit, MI: Wright State University.
- Wooldridge, J. M. (2002). Econometric Analysis of Cross Section and Panel Data. Cambridge, MA: MIT Press.
- Wunnava, P. W., and M. A. Lauze. (2001). "Alumni Giving at a Small Liberal Arts College: Evidence from Consistent and Occasional Donors." *Economics of Education Review* 20: 533–543.
- Yoo, J. H., and W. B. Harrison. (1989). "Altruism in the 'Market' for Giving and Receiving: A Case of Higher Education." *Economics of Education Review* 8: 367–376.

Appendix A

(Dollars in Millions)					Percenta 2010	Percentage Change 2010 to 2011
	2010	01	2011	11	Current \$	Adj. for CPI
Total Voluntary Support Sources	\$28,000	(100%)	\$30,300	(100%)	8.2	4.8
Alumni	\$7,100	(25.4)	\$7,800	(25.7)	6.6	6.4
Nonalumni Individuals	4,920	(17.6)	5,650	(18.6)	14.8	11.3
Corporations	4,730	(16.9)	5,020	(16.6)	6.1	2.8
Foundations	8,400	(30.0)	8,675	(58.6)	3.3	0.1
Religious Organizations	305	(1.1)	305	(1.0)	0.0	-3.1
Other Organizations	2,545	(9.1)	2,850	(6.4)	12.0	8.5
Purposes						
Current Operations	\$17,000	(60.7)	\$17,800	(58.7)	4.7	1.4
Capital Purposes	11,000	(39.3)	12,500	(41.3)	13.6	10.1

Figures in parentheses are percentages of total. Source. Council for Aid to Education (2012).