INSTITUTIONAL CHARACTERISTICS AND ENVIRONMENTAL FACTORS THAT INFLUENCE PRIVATE GIVING TO PUBLIC COLLEGES AND UNIVERSITIES: A LONGITUDINAL ANALYSIS

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To my parents,

Shimo Liu and Dafang Xiong,

Who always love and support me.

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CHAPTER I

INTRODUCTION

Public higher education institutions are currently facing many challenges. The primary challenge for public colleges and universities is to maintain high quality in the face of financial austerity, which determines that the key issue for administrators in the 21st century is finding financial resources (Hearn, 2003; Ehrenberg, 2000; Hirsch, 1999). Most public colleges and universities have realized the inadequacy of short-term, internally-oriented, cost-containment moves and have become innovative in finding new ways to improve management of existing resources and to diversify their revenue streams.

While in the past private giving was largely restricted to private colleges, in recent years, public higher education institutions have become aware of the importance of voluntary support[1] to sustaining operating budgets as resources from states become scarcer (Brooks & Randazzese, 1998; Hirsch, 1999; Press and Washburn, 2000; Pulley, 2001; Soley, 2001). The amount of state support to higher education is rising in dollars, but is declining as a percentage of total revenue for public institutions. Private gifts and grants constitute a significant percent of total revenue for public institutions and are

[1] For purposes of this proposal and in keeping with the literature, private giving is defined interchangeably with voluntary support, voluntary contribution, private donation, and fund raising.

growing rapidly in dollar terms. Therefore, it will be increasingly important to understand the dynamics of voluntary support to public higher education.

Since relatively few empirical studies have been undertaken to systematically examine factors that influence the level of private giving to public higher education institutions, this study attempted to address the knowledge gap. It also investigated the variations in the sources of private giving at public colleges and universities: giving from alumni, non-alumni individuals, corporations, and foundations.

Recent Changes in the Financing of Public Higher Education

American public colleges and universities are trying to balance concurrent pressures to control costs and to deal with sharp declines in financial support from state and federal governments. They have realized that increased tuition is not the solution for revenue shortfalls since it tends to cause declines in enrollment and dissatisfaction from the public. To maintain their financial well-being, more and more public universities have started to actively attract resources from the private sector.

Unit costs in higher education continue to rise because of the high input of relatively costly labor, equipment and the expenses of student living (Johnstone, 1998). Technological innovations, which bring down cost in larger, goods-producing sectors, present challenges to the financial status of higher education institutions. Like other labor-intensive industries such as arts and health care, higher education has few opportunities for substitution of capital or new production technologies for labor. To remain competitive, higher education institutions have to keep up with the increasing pace of technological developments in areas such as instruction, research, data

processing, etc., which incurs additional costs (Brinkman, 1990). Consequently, both costs and prices of higher education tend to outpace the rate of inflation (Johnstone, 2002).

Over the past decade, the percentage increases in state funding for higher education have been smaller than the percentage increases in total state budgets (Hovey, 1999), and the share of state budgets devoted to higher education has decreased overall. Higher education's getting a larger slice of the government's share is becoming less and less likely for several reasons (Johnstone, 2002). Higher education is treated as "balance wheel" in state finance and is perceived as having more flexibility than other state agencies to absorb temporary fiscal adversity through alternative sources of revenue such as tuition and endowments. Because the starting point for budgeting is the prior year, the reduction in higher education spending tends to be perpetuated as state financial situations improve. Another major reason for the declining state spending in higher education is that corrections and public health have gained greater priorities in public funding than higher education (Hearn, 2003; Johnstone, 2002). Also, the growing dissatisfaction with the rigidities and inefficiencies of the public sector generates greater public demand for quality and efficiency in higher education, which drives the shift of financial responsibility from the public to the beneficiaries of higher education (Johnstone, 1998).

The increase in costs of higher education and the decline in state funds threaten public colleges and universities, which have been put under enormous strain by public expectations. State and federal governments have pressed institutions to maintain academic quality, to expand their capacity, and to stimulate regional and national

economic development through training and research (Hearn, 2003). Public higher education has expanded much more rapidly than private higher education since early 1950s, and enrollment in colleges and universities is projected to increase from the 1995 level of 10.3 million to 13.2 million full-time equivalent (FTE) students by 2015 (Council for Aid to Education, 1997). As demand for higher education participation is rising rapidly in the country, the cost per student in higher education has also been growing faster than inflation. However, public funding for higher education has not kept pace with the rapid increase of both enrollment and cost. Higher education has been underfunded by state and federal governments since 1970s, and if this funding trend continues, America's higher education sector will face serious shortage of resources and therefore not equipped to meet the expectations of state and federal governments or the needs of future students.

To meet the increasing demands from the public for their teaching, research, and extension services in the face of declining traditional sources of revenues, public colleges and universities are trying to diversify their revenue sources. Table 1 displays the changes in sources of revenue to public higher education institutions between 1980-81 and 1999-2000. Governmental aid in the forms of appropriations, grants, and contracts has dropped sharply. The share of funding from state governments in institutional revenue of public degree-granting institutions has declined from 45.6% in 1980-1981 to 35.6% in 2000-2001. In the same period, the share of tuition and fees in total revenue has increased from 12.9% to 18.1%, and the share of private gifts, grants, and contracts from 2.9% to 5.1%.

Table 1. Percentage of Sources of Revenue of Public Degree-granting Institutions: 1980-81 to 2000-01

Source	1980-81	1985-86	1990-91	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01
Tuition & fees	12.9	14.5	16.1	18.8	19.0	18.9	18.9	18.5	18.1
Federal government	12.8	10.5	10.3	11.1	11.0	10.6	10.7	10.8	11.2
State governments	45.6	45.0	40.3	35.8	35.6	35.7	36.0	35.8	35.6
Local governments	3.8	3.6	3.7	4.1	3.9	3.8	3.8	3.8	4.0
Private gifts, grants, & contracts	2.5	3.2	3.8	4.1	4.3	4.5	4.7	4.8	5.1
Endowment income	0.5	0.6	0.5	0.6	0.6	0.6	0.7	0.7	0.8
Sales and services	19.6	20.0	22.7	22.2	22.3	22.2	21.8	21.6	21.7
Other sources	2.4	2.6	2.6	3.3	3.3	3.7	3.5	3.9	3.7

Source: National Center for Education Statistics (Table 332)

Although state and federal funds together still top the list of revenue sources, they will decrease at a greater pace in the future. Increased tuition has provided some fiscal relief to public institutions, but generated public hostility as higher tuition without increased need-based student aid reduces low-income students' access to college (Zumeta, 2003). Replacing the lost funds from state and federal governments by raising tuition alone may alienate politicians and the public. While private funds have had some reversals over the years in the rates of change, the revenue stream has been generally on the increase.

The Importance of Voluntary Support in Public Higher Education

As pubic colleges and universities are trying to do better with less, private giving is of growing significance, often providing funds for academic purposes and university initiatives for which there are no other ready sources of support.

Private giving is “a potentially important source of non-governmental, or third stream, revenue” (Johnstone, 2002, p. 33). For all institutions, competing successfully for private giving provides the means to ensure “margin of excellence” in areas such as academic programs, research initiatives, faculty and student support, and facilities (Leslie et al., 1983). For public and private universities alike, it gives institutions more flexibility in planning and decision making and is the only financial resource with potential for significant growth (Johnstone, 2002). Furthermore, the act of seeking funds and then providing ongoing stewardship strengthens bonds among universities, their alumni/ae and their communities and increases accountability and responsiveness.

Once considered the preserve of independent colleges, fund raising in public higher education has become accepted by both donors and colleges. In the early years, fund raising was based more heavily on charity and was concentrated in private institutions (Brittingham & Pezzullo, 1990). Public institutions were seen as having the support of the state and therefore as ineligible for private support, and the institutions themselves also saw it as unnecessary. However, in recent years, to make up for the lost funding from state and federal government and to maintain academic quality in the face of financial constraints, American public colleges and universities have raised their tuition and fees rapidly and also have aggressively pursued revenues from private sources (Hearn, 2003; Johnstone, 2002). Once considered optional or a fringe activity, voluntary support has become increasingly important to public institutions. Many public colleges and universities have borrowed the techniques and methods from the private institutions to pursue it and developed programs to increase the amount of voluntary support that the institutions receive. Ehrenberg (2000) noted that more and

more public institutions were also moving their intercollegiate athletic programs to the NCAA Division I level in hopes of attracting enrollments and more future giving. Although most public colleges and universities lack a pool of wealthy alumi/ae and experience in fund raising, which makes raising large sums of money more difficult to them, they will become increasingly involved in the quest for private giving (Ehrenberg, 2000).

There is still much room for growth in private giving to public higher education. Ehrenberg (2000) predicted, “annual fund-raising campaigns and the search for endowments will continue to grow in importance at public institutions” (p. 33). University developmental professionals must be able to position their institutions favorably with funding sources so that they can maximize donations from private giving.

Recent Trends of Voluntary Support to Public Higher Education

Total private giving to colleges and universities has been steadily increasing. According to the annual Voluntary Support of Education survey, contributions to American colleges and universities rose by 4.9 percent in 2005, to a total of $25.6 billion.

Attributable to expanded institutional efforts, increasingly sophisticated methods, and improved technologies, all sectors of public four-year institutions has experienced increases in total private giving in between 1994 and 2001, as Table 2 illustrated.

Table 2: Total and Average Private Giving to All Public Four-year Higher Education Institutions in Constant Dollars, by Institutional Type, 1994-2004

Fiscal Year	All Public 4-year Higher Education Institutions		Research/Doctoral		Masters		Liberal Arts		Specialized	
	Total	Average	Total	Average	Total	Average	Total	Average	Total	Average
1994	5,271,094	18,052	4,511,743	34,975	466,376	3,534	16,538	973	276,438	19,745
1995	5,427,949	18,033	4,662,595	35,558	441,845	3,274	18,618	980	304,891	19,056
1996	5,955,346	19,462	5,126,099	39,737	503,019	3,518	22,795	1,200	303,433	20,229
1997	6,620,713	21,996	5,714,288	45,351	577,314	4,037	24,218	1,345	304,893	21,778
1998	7,543,955	25,063	6,483,651	50,654	709,395	5,067	27,602	1,534	323,307	21,554
1999	8,204,045	27,810	7,150,908	56,753	736,218	5,259	28,447	1,896	288,472	20,605
2000	9,070,774	29,643	7,853,840	61,842	821,352	5,703	26,874	1,493	368,709	21,689
2001	9,592,797	30,550	8,349,360	64,226	892,124	6,028	32,371	1,904	318,942	16,786
2002	9,137,335	28,289	7,882,525	59,716	814,035	5,500	34,831	1,741	405,944	17,649
2003	9,611,105	29,302	8,382,520	63,027	821,629	5,335	65,032	3,422	341,924	15,542
2004	8,802,083	26,754	7,561,413	55,599	726,961	4,879	66,352	3,318	447,357	18,640
Change from 94-04	67%	48%	68%	59%	56%	38%	301%	241%	62%	-6%

Source: Voluntary Support to Education, Council for Aid to Education (author's estimates).

In constant dollar terms, total private giving to all public four-year colleges and universities increased more than 3 billion dollars, or 67 percent, between 1994 and 2004. Among the four types of institutions, all reported gains in total private giving. Notably, the increase was the largest among public liberal arts colleges, but the sample size in this category are too small to generalize from the findings. Consistent with the Matthew Effect, public research/doctoral universities fared better than other types of institutions, receiving total private giving more than that of all other institutional types combined. In the same period, the average contributions to all public four-year higher education institutions also increased 48%. The average contribution declined slightly in specialized colleges, but increased in all other types of public institutions.

Among public colleges and universities, the primary sources of voluntary support are alumni individuals, non-alumni individuals, corporations, and foundations. As shown in table 3, between 1994 and 2004, all groups of donors increased their average donations: private giving from foundations increased the most (169%), followed by donations from alumni (66%), non-alumni individuals (43%), and corporations (38%). In terms of percentage changes, three donor groups – alumni, non-alumni individuals, and corporations – decreased their relative contributions of total private giving, while foundation giving as percentage of total private giving increased relatively.

Table 3: Private Giving to All Public Four-year Higher Education Institutions in Constant Dollars, by Major Donor Sources, 1994-2004

Fiscal Year	**Alumni**		**Other Individuals**		**Corporations**		**Foundations**	
	%	Dollar	%	Dollar	%	Dollar	%	Dollar
1994	22%	$1,181,213	20%	$1,068,160	29%	$1,535,296	17%	$906,047
1995	22%	$1,210,893	19%	$1,023,346	29%	$1,575,146	18%	$958,582
1996	22%	$1,317,562	20%	$1,216,860	29%	$1,700,123	18%	$1,081,155
1997	23%	$1,542,861	21%	$1,360,806	27%	$1,785,969	19%	$1,274,158
1998	23%	$1,772,517	21%	$1,593,327	27%	$2,034,054	20%	$1,527,451
1999	25%	$2,060,796	20%	$1,615,628	26%	$2,116,535	21%	$1,721,543
2000	23%	$2,111,977	21%	$1,893,515	25%	$2,269,631	23%	$2,049,829
2001	24%	$2,342,522	19%	$1,784,954	26%	$2,483,635	23%	$2,212,329
2002	21%	$1,913,063	19%	$1,727,846	26%	$2,389,340	24%	$2,218,862
2003	22%	$2,149,337	17%	$1,588,424	24%	$2,346,213	28%	$2,666,134
2004	22%	$1,959,683	17%	$1,528,079	24%	$2,115,401	28%	$2,436,454
Change from 94-04	-1%	66%	-14%	43%	-17%	38%	61%	169%

Source: Voluntary Support to Education, Council for Aid to Education (author's estimates).

Note: Figures may not add to 100% because of the exclusion of religious organizations, Fund-Raising Consortia, and other organizations.

Statement of the Problem

Despite the general importance of private giving to public colleges and universities, it has not been adequately explored in academic research. Empirical investigations in private giving to higher education have increased in recent years, but most research on fund raising in higher education has primarily focused on: motivational studies of donors and case studies of fund raising in higher education institutions with varied characteristics. Only a few studies examined which factors influence voluntary support for public institutions of higher education. Given the apparent importance of voluntary support to higher education in the near future, there is a need to know more about the association of certain factors with the levels, sources, and centrality of private giving in institutions. That improved knowledge should not only help public higher education institutions improve their financial prospects but also contribute to analytic understanding of the dynamics of institutional financial management.

Purpose of the Study

This study investigated the effect on giving of a variety of institutional characteristics that have been included in past research studies. It included a number of state policy and governance factors as well as socioeconomic factors, the effects of which have not been previously examined in conjunction with institution-level factors. The purpose of this study was to understand how these factors explain variations in overall voluntary support and its varying sources to public colleges and universities. There are four primary groups of donors providing voluntary support in higher

education: alumni/ae, non-alumni/ae individuals, corporations, and foundations. Each type of donor has different motivation for giving and has a tendency to designate gifts differently. Also, previous research suggested that certain institutional traits are more effective in increasing the probability and amount of support from certain types of donors, and certain selected policy and governance factors as well as economic factors account for variations in levels of voluntary support to colleges and universities (i.e., Leslie et al., 1983; Leslie & Ramey, 1988).

Research Questions

This study addressed the following specific research questions:

1. Which institutional, state policy and governance, and socioeconomic factors are most closely associated with the generation of private giving to public postsecondary institutions?

2. How do these factors differently influence private giving from four sources- alumni/ae, non-alumni/ae individuals, corporations, and foundations?

Significance of Study

More than one million nonprofit organizations and educational institutions vie for private support. In higher education, dependence upon private giving varies across institutions. For some colleges and universities, private giving represents a significant portion of total external support; for others, it accounts for a much smaller share. Nevertheless, virtually all higher education institutions actively seek private giving and depend upon it to meet operating expenses and develop new programs. Given the

overall decline in governmental support and the keen competition for philanthropic resources, there is a growing realization of the importance of private giving on the part of public institutions of higher education (Brewer, Gates, & Goldman, 2001).

Although previous studies have developed some aspects of the theoretical framework, none delineated an explicit and systematic framework to explain how certain factors affect the overall private giving as well as private giving from different donor groups. This study includes a broad array of variables of institutional and environmental factors and represents an initial step in establishing a conceptual framework for explaining private giving to pubic higher education institutions. It moves beyond the perceptions of individual donors and grant-seekers to an aggregate analysis of overall contributions and private giving from different donor groups. This approach is important because a clear understanding of the forces influencing voluntary support has major implications for fund raisers at public colleges and universities. By examining the influence of these factors on the overall contributions, the study can help administrators to assess their institutions' relative fund-raising potential. By exploring what appeals to alumni/ae, non-alumni/ae individuals, foundations, and corporations, this study can help administrators develop more effective fund-raising plans targeting the needs of different donors.

The uniqueness of this study, compared with most of the earlier research, lies in the use of a panel dataset and the inclusion of the roles of environmental factors in the examination of private giving to public higher education institutions. It contributes to the literature by utilizing a large sample of public higher education institutions over the span of 10 years. At the contextual level, the study examined a variety of variables,

which have not been systematically examined previously. These were examined for total private giving as well as separately for private giving from different sources. Furthermore, this study also served as a guideline for extending future research relating to private giving at other types of institutions.

CHAPTER II

REVIEW OF THE LITEERATURE

This chapter is intended to serve three purposes: (1) to summarize current knowledge in private giving, particularly private giving to higher education; (2) to clarify the need for and intended contribution of the current study; and (3) to provide a reasonable basis for the development of conceptual framework and subsequent hypotheses in this study.

Chapter Two begins with summaries of the literature on private giving to nonprofit organizations. Rather than in making the review exhaustive, the goal of the first section is to present studies salient to this study. Therefore, this section largely focuses on studies that test models of private donation at the organization level as opposed to private donation at the individual donor level. The second section first reviews studies on alumni giving, then presents the empirical studies on total private giving to higher education in the United States, and lastly summarizes some important findings of these studies to demonstrate the warrant of the current investigation.

Research on Private Donation to Nonprofit Organizations

The nonprofit sector has traditionally relied on charitable donations to provide critical revenue for operations, and fund-raising is a major focus for nonprofit managers. During the past 25 years, researchers have made significant strides in both empirical and theoretical efforts in understanding philanthropic fund raising along two major

lines of inquiry: one line examines what determines private donations at the individual donor level, especially sociodemographic, economic, and attitudinal characteristics of individual donors; the other focuses on private donations at the organization level as a function of organizational characteristics and macroeconomic factors.

Determinants of Private Donation at the Donor Level

In the first line, most studies acknowledge that no single donor characteristic accounts for a donor's decision to give; instead, charitable giving arises from a complexity of motives, attitudes, and demographic attributes. Age, gender, marital status, race, and ethnicity have been found to be related to giving in previous research (e.g. Clotfelter, 1997; Wolff, 1999; Hodgkinson & Weitzman, 1996, 1998). Many researchers have also established that charitable givers tend to have higher incomes and education attainment, volunteer more often, and are more likely to be religious. Motivational factors such as desire to help others and access to elite business and social networks also play very important roles in the action of charitable giving. Studies in this line tend to use a variety of individual-level variables to help explain the level of giving, and very few of the studies consider the influence of larger environmental factors.

Recognizing that people are nested in larger contexts, some researchers included economic, political, and socioeconomic factors in addition to individual-level factors in their studies of the influences on individual giving. Wolpert (1995) used Elazar's (1972) typology of political culture to correlate giving levels with points along the liberal-conservative continuum. He found that donor giving patterns examined in

their local social and economic contexts could provide additional insights since more than 90 percent of contributions are railed and spent locally. One of the findings from his community studies was that generosity is greater where per capita income is increasing and the political and cultural ideology is liberal rather than conservative.

Bielefeld, Rooney, and Steinberg (2005) used probit and tobit regression equations for a base model with only individual characteristics and then a full model with added contextual variables at the state level to analyze their dataset consisting of the results of five different surveys. They found that state level poverty rate, income gap, public expenditures, political culture, and generosity levels had impacts on giving. For example, higher poverty rates may lead to lower giving, while the higher the income gap between the top and bottom 5th, and the higher the state expenditures, the greater the giving.

These studies shed light on how donor behavior is related to the level of economic well-being and political culture of a region. But they did not take into account the activities of recipient organizations or explore the differences among donor groups.

Determinants of Private Donation at the Organization Level

In the second line, the existing literature has focused on two policy-related issues: the effect of tax policy and government spending policy on private donations to nonprofit organizations. There is a rather large economic literature that considers both theoretically and empirically the impact of tax deduction on the quantity of overall charitable contributions (see Taussig, 1967; Feldstein, 1975a, 1975b; Clotfelter, 1985).

Most of the literature generally found tax deductibility has positive and statistically significant relationship with charitable giving. Empirical investigation into the relationship between government subsidies and private donations has frequently been performed, but the findings are mixed. Steinberg's (1993) review of the literature concluded that research generally found a partial crowd-out effect ranging from .5 cent to .35 cents per dollar of government support to nonprofit organizations in the United States. Another review of the literature by Brooks (2000) identified 22 studies of the effect of government subsidies on private donation to nonprofits organizations. The evidence favors a partial crowding-out effect, with 13 studies supporting the crowding-out hypothesis, 4 supporting crowding in, and 5 finding no statistically significant relationship between government funding and private contribution.

Brooks (1999a) thoroughly presented the arguments on the debate of both crowding-out and crowding-in hypotheses surrounding the relationship between government subsidies and private donations to the nonprofit sector. On one hand, there are several plausible reasons why public funds tend to crowd out private donations. First, donors' sense of responsibility and enthusiasm for supporting the nonprofit sector might diminish if the government takes more responsibility for its funding. Second, government subsidies to nonprofit organizations may make them appear to private donors in need of no private support. Third, some private donors may continue a financial relationship with a nonprofit only as long as they can maintain control over the organization (Odendahl, 1990), and government intervention may compromise this control. Lastly, since government support is tax-based, higher public support might mean that individuals have less disposable income and hence do not donate as much as

they otherwise might. On the other hand, government subsidies to nonprofit organizations might crowd in private donation. Some government support takes the form of matching funds, which should generate greater benefits to both giver and receiver. In addition, government funds to nonprofit organizations may act as a signal of quality to private donors and therefore stimulate the attention of private donors.

Brooks (1999) used regression analysis to estimate the effects on this year's private giving to a particular subsector of last year's federal expenditures in that area and got the following findings: In the case of education and arts and culture, neither state nor federal spending had a significantly impact on private giving; in social-human services and health, while federal spending did not affect private giving, state spending had a small but significant crowding-out impact on private giving. One dollar in state spending displaced about 16 cents in private giving to health nonprofits and about 2 cents in donations to human and social welfare.

Using a panel data set of 430 non-profit shelter, human services, and other similar types of organizations that were in operation between 1982 and 1992, Payne (1999) tested whether government grants given to nonprofits crowded out private giving after controlling for heterogeneity in the nonprofits' provision of services, possible endogeneity of the government grants, as well as the political and economic status of the states in which the nonprofit is located. The results suggested that government grants did not affect private donation under an OLS specification. In a 2SLS specification, an additional dollar of government grants crowded out private donation by approximately 50 cents.

The seminal work on determinants of private donations at the organization level was conducted by Weisbrod and Dominguez (1986). These analysts developed a model that relates private donations to a particular nonprofit organization to the conventional market variables price, advertising, and quality. In this study, Weisbrod and Dominguez (1986) defined the relevant price to a donor as the after-tax cost of contributing a dollar of output, not input, to a particular nonprofit organization. Using fund-raising expense as a proxy for advertising and age of the organization as a proxy for quality, they found private donations to be significantly positively related to fund-raising for all seven of the industry samples.

Subsequent studies added government support and program service revenue to Weisbrod and Dominguez (1986) model and applied it to estimate the determinants of donations for nonprofit organizations in different industries. However, in two studies on the determinants of charitable giving for UK nonprofits with models similar to Posnett and Sandler (1989), government grants were found to have positive effects on hospitals and health and social welfare nonprofits (Khanna et al., 1995; Khanna & Sandler, 1997).

Using a large panel data set of IRS form-990 returns on individual nonprofit organizations in each of seven industries--- including hospitals and higher education---for the period 1982-1994, Okten and Weisbrod (2000) tested the Posnett and Sandler (1989) model and found that increases in either a nonprofit's government grants or revenue from its own program services did not crowd out a nonprofit organization's donative revenue. To the contrary, government grants exerted a significantly positive effect on private donations in libraries, hospitals, scientific research, and higher

education. Using a large sample of nonprofit organizations over an 11-year period, Frumkin and Kim (2001) examined the relationship between efficiency (measured as the ratio of administrative expenses to total expenses in a nonprofit organization in a given year) and private donation, with control variables such as government grants and contracts. They found a significant positive effect of government grants and contracts on nonprofit organizations in health and human service, but an insignificant effect on those in other fields such as arts and education.

Posnett and Sandler (1989) tested pooled cross-sectional data on nonprofit organizations in the United Kingdom and found no effect of government grants on private donations. Using a panel data on U. S. higher education, hospital, and scientific research nonprofit organizations, Marudas and Jacobs (2004) applied econometric tests on competing specifications of a model of donations similar to previous studies and identified two-way fixed-effects as the best specification. They found no evidence that government grants crowded out donations. Instead, government grants were found to slightly crowd in donations to U. S. higher education.

Given the mixed results, it seems fair to say that the crowding-out question is one that is well served with case-by-case empirical analysis, since each subsector possesses its own constituencies and funding characteristics as well as different levels of public support (Brooks, 1999a). This is clearly a complex issue and more in-depth studies are needed.

Research Related to Private Giving to Higher Education

In this section, studies on alumni giving at both the individual level and the institutional level are first discussed. Then, studies on institutional-level total private giving as well as private giving from different sources are examined in detail.

Literature on Alumni Giving

Studies focusing specially upon alumni giving have dominated the literature of private giving to higher education. Over the last two decades, a host of researchers have analyzed the characteristics of alumni donors as compared to nondonors (e. g. Bruggink & Siddiqui, 1995; Coltfelter, 1985; Clotfelter, 2003; Okunade, 1996; Okunade & Berl, 1997; Okunade, Wunnava, & Walsh, 1994). Through informal analysis of these studies, groups of factors that influence alumni giving can be identified: (1) demographic characteristics (e. g. age, sex, marital status, gender, geographic location of residence, number and age of children); (2) psychological factors (e. g. emotional attachment to the institution, level of satisfaction with previous university experiences, personal values and beliefs); (3) socioeconomic factors (income, race, social status and employment status, past giving). (4) external environment (tax policies, economic environment, unemployment rate, stock market conditions).

Using survey response data of alumni of a large, Doctoral I public university, Okunade and associates conducted a series of study on the propensity of alumni to donate (Okunade, 1993; Okunade, 1996; Okunade & Berl, 1997; Okunade, Wunnava, & Walsh, Jr., 1994). Okunade (1993) and Okunade and Berl (1997) investigated the determinants of charitable giving of business school alumni via logistic regression and

found the probability of alumni giving to be significantly related to factors such as time since graduation, major area of degree, presence of another alumnus in family, empty nest life-cycle stage, awareness of other cash-gifting alumni, family income, matching gifts company employment, and feeling about educational experience at the university. Okunade (1996) and Okunade, Wunnava, and Walsh, Jr. (1994) employed covariance regression to model the giving profile of both undergraduate and graduate alumni. The findings about undergraduate alumni indicated that business school alumni, alumni who also earned graduate degree(s) at the university, and alumni members of non-Greek social clubs tend to give more to the university and that giving also varied over business cycles. The profile of graduate alumni differs from that of undergraduate alumni. The likely gift-giving graduate alumni are male holding vintage Doctoral, MBA or MS degrees; however, they neither received their second graduate degree nor earned their baccalaureate degrees at the institution. Alumni with doctoral degrees have the highest giving profile among all the graduate degree alumni, and strong confidence in economy is positively correlated with giving.

Using a rich set of data on two cohorts of former students from a sample of 34 elite private colleges and universities, Clotfelter (2003) explored the connection between an individual's experience with the institution and subsequent giving behavior. The level of alumni donations was strongly correlated with income, whether or not the alumni graduated from the institution where he or she first attended college, and the degree of satisfaction with his or her undergraduate experience. Their satisfaction in turn was a function of several aspects of their experience, including whether the person had attended a public high school, whether the college had been the person's first

choice, and whether there was someone who took a special interest when he or she was enrolled there.

Using cross-section and time series data from one liberal arts college, Bruggink and Siddiqui (1995) examined how individual characteristics of alumni along with national economic conditions such as unemployment rate and tax change affected the level of alumni donation. In their study, the following factors were positively related to alumni giving: income, age, fraternity/sorority affiliation, engineering major, and being single. The factors that were negatively related to giving were distance of current residence from college and the unemployment rate.

While the aforementioned studies examined alumni giving at the individual level, the following studies addressed alumni giving at the institutional level. In collecting and merging both institutional characteristics and costs of fund raising and college relations data for each of three years from 17 colleges and universities, Harrison's (1995) study effectively predicted ratios of alumni donors to total alumni of each school. Facilitated by factor analysis, thirteen expenditure and institutional variables were reduced to a set of three groups of variables: Fund-Raising Effort (fund-raising costs; endowment; alumni giving and cost of alumni relations; and corporate matching gifts), Resource Use (education and general expenditures and other relations expenditures over and above alumni relations and fund-raising activities), and Donor Wealth (bequests, property gifts; and gifts of other individuals besides the alumni pool). A logistic model was then used to predict proportions of alumni at each school in the sample who would donate to their school. The three factor-analytic variables used in the logistic model---alumni costs per full-time equivalent student, other college

relations per student, and planned giving per student---were significant at the 0.01 level of significance. Among all the variables, expenditures on alumni activities had greatest significance in explaining success for this sample of schools.

Badde and Sundberg (1996) utilized a large national database of both public and private colleges and universities and found that alumni giving at the institutional level was correlated with institutional characteristics, such as quality and development efforts, and student characteristics. Institutional quality (as measured by student ability, admission selectivity and instructional expenditures per student) was found to have a positive impact on the average alumni giving, with that impact most significant for private universities and liberal arts colleges. Higher student wealth as measured by tuition also resulted in larger gifts per alumni, with the estimated coefficients most significant for public universities. Development effort as measured by the ratio of alumni solicited to alumni of record was very positively critical in determining the level of alumni giving for all three types of institutions.

While most previous studies addressed private giving to higher education as a function of contemporaneous institutional characteristics, Cunningham and Cochi-Ficano (2002) contributed to the literature by including a 13-year lag between measures of the determinants of alumni/ae giving and average donation per alumnus. Utilizing a sample of 415 public and private higher education institutions, they explored the role that lagged institutional characteristics had on subsequent alumni/ae donations to the institutions. Their results demonstrated the noncontemporaneous effects of variations in institutional characteristics such as academic reputation and student-faculty ratio on subsequent flows of alumni/ae giving. Both mean SAT and self-reported entrance

difficulty had positive and statistically significant effects, and mean SAT was the most economically meaningful stimulant to average alumni/ae donations. In addition, "a standard deviation increase in the faculty-student ratio (two additional faculty per one hundred students) is associated with a $17 increase in contributions per alumnus or $442,000 from all alumni/ae annually" (p. 559).

In sum, research on alumni giving presents evidence that alumni giving is sensitive to a variety of the unique features of that institution and also to factors of external environment.

Studies on Total Private Giving Private Giving from Different Sources

A small body of research focusing specifically on charitable contribution to higher education has empirically examined the determinants of donative revenue flows. In general, these studies have found that total voluntary support to higher education institutions has been related to the size of a college's endowment (Dunn et al., 1989; Duronio & Others, 1988; Leslie & Ramey, 1988; Pickett, 1977), the level of educational and general expenditures (Dunn et al., 1989; Duronio & Others, 1988; Leslie & Ramey, 1988), FTE enrollment (Coughlin & Erekson, 1986; Duronio & Others, 1988; Leslie & Ramey, 1988), the number of alumni/ae of record (Duronio & Others, 1988; Duronio & Loessin,1990; Pickett, 1977), Gourman quality rating[2] (Drachman, 1983; Leslie & Ramey, 1988), the level of fund-raising expenditures

[2] The Gourman Report, published annually since 1967, ranks more than 1,200 undergraduate colleges and approximately 140 major disciplines. The author Jack Gourman, a retired professor, provides no information on its methodology. Gourman's rankings are controversial, and according to some critics, favor large state universities.

(Duronio & Others, 1988; Pickett, 1977), and the size of the fund-raising staff (Pickett, 1977; Woods, 1987).

In her dissertation, Woods (1987) attempted to identify the institutional characteristics and fund raising practices which were most closely associated with an institution's gift income by using a sample of 77 public research/doctoral universities. Her analysis incorporated the following variables: financial resources (number of alumni/ae, federally sponsored research grants, legislative appropriations, and student aid funds), inherent institutional characteristics (age, endowment, in-state and total enrollment, cost of attendance, education and general expenditures, number of advancement professional staff), organizational components (fund-raising and constituent relations goals, planning, staffing, budget, experience, and structure), method components (solicitation techniques, written proposal, capital campaign, and use of trustees, faculty, president, students, volunteers), gift emphasis components (annual, deferred, corporate, foundation, and major giving emphasis), and U. S. regional locations. She identified financial resources and inherent institutional characteristics as two factors especially crucial to success in fund-raising.

Though most studies on voluntary support to higher education focus on attributes of institutions, a few researchers incorporated macroeconomic factors in their analysis of fund raising in higher education and provided empirical evidence (Coughlin & Erekson, 1986; Drachman, 1983; Leslie et al., 1983; Leslie & Ramey, 1988; Smith & Ehrenberg, 2003; Gianneschi, 2004).

Using time series regression analysis on data from 1932 to 1974, Leslie et al. (1983) examined the impact over time of economic factors and federal tax policies on

overall voluntary support for higher education. Their results showed that aggregate voluntary support to higher education was significantly affected by changes in economic variables that reflect the level of economic activities, corporate profits, and personal savings. Leslie et al. (1983) found the most powerful (and positive) predictor of giving to higher education was Standard and Poor's 500 measure of the equities market, followed by bond yields, and consumer prices. By examining the impact of selected economic factors on the share of total contributions to higher education by business over time, Leslie et al. (1983) found that contrary to individual giving, corporate giving expanded with bullish economic conditions and inflation, but declined with government intervention (taxation). By examining the impact of selected economic factors on the share of total contributions to higher education by individuals over time, Leslie et al. (1983) found that individuals perceive greater institutional needs when economic conditions are relatively poor and would give more during such time. Individual giving was found to increase when stock equities, inflation, and bond yields were down and tax collections were up.

Subsequent studies used the disaggregated level of analysis by examining the determinants of voluntary contribution to individual colleges and universities. Using data from 52 universities for 1980-1981 and ordinary least square estimation, Coughlin and Erekson (1986) examined the determinants of voluntary contribution to institutions of higher education in five different categories, namely, total voluntary support, support for current operations, support for capital operations, corporate support and alumni/ae support. Athletic success was a significant and positive determinant of total voluntary support, total support for current operations and total support for capital operations, and

SAT and student enrollment were significantly positively related to total voluntary support and total support for current operations. Per capita income did not perform as expected as consistent with earlier work (i.e., Leslie et al., 1983) and was found to significantly affect only total capital giving. Coughlin and Erekson (1986) found that corporate giving was significantly affected by institutional quality and size. This finding was consistent with the authors' hypothesis that corporations are more interested in supporting an improved future labor force and tend to concentrate their giving disproportionately in large institutions where their giving would have broader impact. Alumni/ae giving was significantly affected by Gourman's ranking of public relations programs and athletic success.

In their widely-cited study using data from 73 major research universities for the years 1977 and 1980, Leslie and Ramey (1988) found that the effects of size, expenditures per student, endowment per alumnus, and regional growth (as measured by per capita income, state dividend and interest income, and the percentage of federal income tax returns itemized in a state) on total voluntary support are significantly positive, where as the Gourman rating, age and state appropriations are insignificant. Surprisingly, current efforts to enhance donor-institution relationships, as reflected by the percent of alumni/ae of record solicited, has small negative effect on total voluntary support. The authors therefore concluded that the long-term donor-institution relationships appear to have a larger role in explaining total voluntary support. Leslie and Ramey (1988) composed separate models for the various donor groups---alumni/ae, non-alumni/ae individuals, business corporations, and nonbusiness organizations---and tried to infer the logic of donor behavior from institutional and regional characteristics

and from institutional actions. Their study suggested that most donors like to give to thriving institutions that already are targets of public philanthropy, although alumni/ae also respond to a perception of institutional need. Institutional quality as reflected in expenditures per student and past fund-raising success as reflected in endowment per alumnus are of significance to non-alumni/ae donors, but not alumni/ae donors. Institutional prestige as represented both by the Gourman rating and age of institution is the main predictor of alumni/ae contribution. State appropriation per student has a statistically significant negative influence on both alumni/ae and non-alumni/ae donors, with elasticity of -.34 for alumni/ae and -.43 for non-alumni/ae. This suggested that "individuals respond most favorably in times of institutional need, when economic conditions are poor" (p. 118). Percent of alumni/ae solicited did not significantly affect individual contributions, which indicated that "current efforts to add to the stock of useful philanthropic relationships have little immediate effect on individuals" (p. 127).

Using data from a panel of private research universities from the 1968-69 to 1998-99 period, Smith and Ehrenberg (2003) built a structural model of the sources and uses of giving with both characteristics of the institutions and macroeconomic variables. Smith and Ehrenberg (2003) found that an increase in the estate tax rate, holding other variables constant, led to an increase in the share of foundation giving and a corresponding decrease in the share of corporate giving and that higher capital gains tax rates were associated with lower levels of giving from alumni/ae and other individuals. Institutions at the top tier of U. S. News & World Report ranking obtained the highest alumni/ae, foundation, and corporate giving. They also reported that "larger institutions, as measured by enrollment levels, and wealthier institutions, as measured by

endowment per student, also received higher levels of giving from all sources" (p. 74). Lastly, larger number of alumni/ae per enrolled student is related to higher level of alumni/ae giving, but lower level of other individual giving.

Using financial data from a nationally representative sample of 161 public colleges and universities, Gianneschi (2004) examined whether changes in state appropriations are related to changes in voluntary support using ordinary least squares regression and fixed-effects regression. OLS techniques revealed that corporations and other individuals were more likely to give to an institution when it receives higher levels of state appropriations and that voluntary support from alumni/ae and foundations were not related to state appropriations. Gianneschi (2004) found a positive relationship between state appropriations and restricted giving levels from corporations and other individuals and no relationship between unrestricted giving levels and state appropriations. Controlling for all institutional and state fixed (time-invariant) characteristics, fixed-effects regression techniques were used to test the relationships between voluntary support and state appropriations and regional economic indicators. The results showed that state appropriations were consistently, positively, and significantly related to total voluntary support and total restricted voluntary support, and for restricted voluntary support from each donor group.

In sum, scholarly research on private giving to higher education is very limited and has had a very short history as a serious subject of study. Few of the papers did time-series analysis on the determinants of private giving to individual colleges and universities. The samples used in most past work were limited to a set of major research universities (e. g. Leslie & Ramey, 1988; Smith & Ehrenberg, 2003; Woods, 1987).

That research universities are not representative of all colleges and universities in the United States makes it difficult to generalize the results to other types of institutions. Therefore, the results for these studies should be interpreted with caution and the analysis should be replicated with a wider variety of colleges and universities. But on the other hand, the results do encourage future researchers to study whether institutional type exerts some influence on voluntary support to an institution. Another flaw of several past studies is the use of Gourman rating as a proxy for academic quality (e. g. Coughlin & Erekson, 1986; Leslie & Ramey, 1988). The Gourman Report, from which the rating in Leslie and Ramey's (1988) study was obtained, was widely criticized for its methodology and for its noticeably skewed rankings in favor of large state universities (Selingo, 1997).

The reviewed literature showed that there are significant differences in the determinants of support among various categories of support, and while some results of different studies are consistent, others contradicted each other. For example, though using different measures of institutional quality, both Gianneschi (2004) and Smith and Ehrenberg (2003) found alumni, corporate, and foundation givings are positively related to institutional quality. Contrary to Leslie and Ramey's (1988) finding that alumni/ae and non-alumni/ae increase giving when state appropriations decline, Gianneschi (2004) found no significant relationship between state appropriations and alumni/ae giving but significant positive relationship between state appropriations and non-alumni/ae giving. This calls for further exploration on private giving to higher education.

Most work on private giving to higher education has been done on the impact of institutional factors, such as endowment, alumni/ae of record, and so on. While these factors are clearly relevant, it is important to remember that public higher education institutions are embedded in larger contexts. So while the resources of an institution will influence the private giving it receives, the political and economic climate of its state might also have a significant effect on charitable giving. Therefore, to understand the totality of influences on private giving to public higher education institutions, development professionals and higher education policymakers should be aware of the impact of macrofactors such as political and socioeconomic factors as well as institutional factors. It may help to explain why institutions of similar characteristics may have different levels of private giving. Knowing what impact these factors have on private giving will make possible prediction of what these changes are likely to mean for giving levels.

CHAPTER III

CONCEPTUAL FRAMEWORK

The conceptual framework for this study draws on social exchange theory, organizational theories, and previous research on the determinants of voluntary support to higher education institutions. In this chapter, donors' motivation to give is first discussed, and then different motivations among different donor groups are explored. Since research has shown that private giving is a complex process that is subject to the influences of two types of intervening variables or forces --- institutional and environmental, the second and the third sections of this chapter present these factors along with detailed hypotheses associated with them.

Donors' Motivation to Give to Higher Education

This study is based on the following basic assumptions: Private giving is based on the principles of exchange and reciprocity; donors and recipients were motivated by self-interests; donors were expected to maximize utilities by making rational assessments of the relative value of the attractive characteristics of competing recipients.

Exchange theory has been used by researchers to explain donor behaviors in higher education context (e. g., Hale, 1987). Kelly (1991) stated, "Fund raising predominantly involves a social exchange relationship between a charitable organization and a donor, in which the power of each relative to the other determines

the outcome of the exchange" (p. 199). A business transaction is typically considered an exchange of money for a product or service. However, in the case of nonprofit organizations such as higher education institutions, the benefits of philanthropic exchanges are both economic ("tax incentives, goods and services, exclusive favors and gifts") and social ("group membership, status and prestige, avoidance of peer sanctions, and friendship") (Hale, 1987, p. 202). This type of transaction can be defined as an exchange of values between two parties (Kotler, 1972). I posit that the relationships between donors and higher education institutions are based on social exchange. As Blau (1968) pointed out, the "most important benefits involved in social exchange do not have any material value on which an exact price can be put at all, as exemplified by social approval and respect" (p. 455). In higher education fund raising, social benefits to donors play a primary role, and higher education institutions often rely heavily on the promise of social benefits from their products. Therefore, it is important that higher education institutions acquire a better understanding of the factors that affect relationships that involve primarily social exchange.

Donors of different types may expect different benefits from their donation and therefore may have different motivations to donate. Alumni/ae and other individual donors are likely to be motivated by institutional pride, prestige, and emotional attachment, or they may give because they want to ensure the marketability of their degree and their children's degrees earned from an institution. Non-alumni/ae and foundations are more interested in quality and social/educational benefit. Non-alumni/ae individuals may be motivated to donate by a desire to give something back to society. Foundations are more interested in prestige of a college and may give to enable

an institution to produce a better-quality higher education for the society (Brittingham & Pezzullo, 1990). Corporations often give to receive some type of benefit in return for their investment, and tend to donate money to institutions with which they want to cultivate relationships. For example, companies may donate money to facilitate applied research at an institution that might be helpful to their business, or they may donate money to support higher education for the improvement of the local community in the hopes of building the social and human capital of the region (Brittingham & Pezzullo, 1990; Coughlin & Erekson, 1986; Brewer, Gates, & Goldman, 2001). In the present study, voluntary support by four major donor groups—alumni/ae, non-alumni/ae individuals, corporations, and foundations---were analyzed as dependent variables individually.

Institutional Characteristics that Influence Private Giving to Higher Education

From review of studies on fund raising, three types of institutional characteristics are related to the success of an institution's fund-raising program emerge: institutional capacity, fund-raising history, and fund-raising effort (Brittingham & Pezzullo, 1990).

Institutional Capacity

An institution's capacity may be thought of as the hypothetical maximum private support an institution could raise under the best conditions. Capacity for fund raising is partly a function of the number of a college's alumni/ae and the collective wealth of its alumni/ae, and the increase of the size of an institution's alumni/ae body

determines its potential for attracting donations (Leslie& Ramey, 1988; Wood, 1987). Since the increase in size of alumni/ae might enable development offices to make connections to other groups of donors that have ties with alumni, it is hypothesized that:

$H_{1:}$ Institutions with more alumni/ae of record will attract higher private giving from all four types of donors and higher total private giving.

Capacity may also refer to the institution's total resources such as institutional quality and prestige and institutional wealth. Quality is a fundamental part of fund-raising mix. Institutions are expected by donors to convey a commitment to maintaining quality or a commitment to achieving quality (Cook & Lasher, 1996). Donors who have never attended a particular institution will have less confidence in their ability to evaluate whether the institution is making appropriate resource allocation decisions and therefore may look to an institution's quality as a proxy. The assumption that donors pursue social benefits in providing financial support to higher education institutions also leads to the prediction that institutions of greater institutional quality receive higher private giving from different types of donors who intend to increase educational benefits to society and thus maximize their own well-being. In addition, according to accumulative advantage, wealthier institutions tend to raise more money than less wealthier ones (Caboni, 2003; Pickett, 1977; Woods, 1987). The hypotheses are as follows:

H_2: Institutions of greater institutional quality and prestige will receive higher total private giving and higher private giving from all four types of donors.

H_3: Institutions of greater institutional wealth will receive higher private giving from all four types of donors and higher total private giving.

Fund-raising History

A substantial history in fund raising not only provides an opportunity for programs to mature, but also builds a sense of expectation or tradition in fund raising. Endowment per FTE is used as a proxy for fund-raising history. The hypotheses for fund-raising history are:

H_{4a}: Institutions with greater endowment per FTE will attract more private giving from all four types of donors and more total private giving.

H_{4b}: Increases in endowment per FTE will lead to higher private giving from all four types of donors and higher total private giving.

Fund-raising Effort

The effort or priority an institution gives its fund-raising program is also generally related to fund-raising success. The hypothesis is as follows:

H_{5a}: Institutions with greater fund-raising effort will attract higher private giving from all four types of donors and higher total private giving.

H_{5b}: Increases in fund-raising effort will lead to higher private giving from all four types of donors and higher total private giving.

Environmental Factors that Influence Private Giving to Higher Education

Contemporary organization theories focus on the external environment as a crucial influence on the structures and activities of an organization. For environmental factors, I included policy and governance factors such as state postsecondary governance structures and state support to higher education and socioeconomic factors.

State Policy and Governance Factors

The state arrangements for higher education governance in the United States differ markedly across the nation. While some states have organized their higher education institutions into a centralized, bureaucratic system, other states give their campuses considerable autonomy to manage their own academic and financial affairs. McGuiness (2003) and *State Postsecondary Education Structures Handbook* (1991, 1994, 1997) classifies state governing boards with respect to their powers to regulate public universities as the following three types:

- *Consolidated governing boards*, which represent the most centralized governance structure, have the authority to govern institutions, establish salaries for chief executives, set faculty personnel policies, develop and implement policies, and allocate resources among the institutions under their jurisdiction.
- *Coordinating boards* do not govern institutions and usually do not have independent corporate status. Coordinating boards have either regulatory or advisory authority over academic programs and budgets. Some coordinating boards have regulatory authority over only one of these areas and advisory authority over the other area. A few coordinating boards have only advisory authority over both areas.
- *State planning agencies*, which represent the least centralized structure, typically do not have regulatory or governance authority over the higher education institutions in their states.

Some universities have special legal status known as constitutional autonomy, which makes a state university a separate department of government, not merely an agency of the executive or legislative branch. The governing board in a university with constitutional autonomy has a significant degree of independent control over many university functions.

The amount of regulation and control by state government affects how universities make strategic choices in financial management. In several seminal empirical studies conducted by Volkwein (1984, 1986a), it was found that institutions which are less hampered by state fiscal control are less dependent on state appropriations and raise a larger portion of their funds from non-state sources. One possible explanation offered by Volkwein (1984, 1986a) is that freedom from state academic and financial constraints may encourage universities to shift administrative resources away from coping with state bureaucracy and into more cost-effective activities such as fund raising. For this study, it is hypothesized that:

H_6: Institutions with higher levels of state financial and personnel control will have higher total private giving and higher giving from all four types of donors than those with lower levels of state financial and personnel control.

Another policy variable that could be considered is matching fund programs. Twenty four states have implemented state matching funds programs that match private donations with state-appropriated funds, and several other states are considering them (Knapp, 2002). Most state matching programs promote private giving to public colleges and universities (Knapp, 2002), and have proven to be effective methods of encouraging private giving to public colleges and universities. From 1999 to 2002, state

matching fund programs helped to generate $363 million for higher education institutions, of which $276 million came from private sources and only $87 million from states, resulting in a remarkable return on investment (Knapp, 2002). This leads to the hypothesis as follows:

H_7: Institutions in states with matching fund programs will have higher total private giving and higher giving from all four types of donors than those in states without matching fund programs.

Since higher education generates significant benefits to society as a whole, state governments provide their support to public colleges and universities through allocation of tax revenues. States not only provide direct financial support to colleges and universities through state appropriation, but also provide indirect support through student financial aid and lottery revenue. Of 39 states maintaining lottery, 18 have earmarked lottery revenues for higher education through direct system allocations or merit-based scholarships. Prior literature has found some crowding-out effects of government funding on private contributions to nonprofit organizations (Steinberg, 1987; Kingma, 1989). The hypotheses are developed as follows:

H_{8a}: Greater state support to higher education will lead to less private giving from all four types of donors and less total private giving.

H_{8b}: Increases in state support to higher education will lead to lower private giving from all four types of donors and lower total private giving.

H_{8c}: Institutions in states that use lotteries to fund higher education will attract less total private giving and less giving from all four types of donors.

Socioeconomic Factors

A large body of political literature suggests that citizens in different states vary considerably from one another in their political ideology (e. g. Berry, et al., 1998). Considering that conservative values tend to emphasize individual initiative and wealth-building more than public or private giving, I developed the hypothesis as follows:

H_9: Institutions in states in which citizens are more liberal ideologically will have higher total private giving and higher giving from all four types of donors than those in states in which citizens are more conservative ideologically.

Private giving appears to closely follow economic trends in general. Given the differences in motivations of different donor groups, it is reasonable to expect that corporations and foundations tend to donate less in times of economic downturn, while individuals with significant assets may be less affected by fluctuations in the economy and are more likely to respond to particular needs of an institution when making contribution decisions. The hypothesis is formulated as:

H_{10}: State economic growth will lead to higher total private giving and higher giving from corporations and foundations, but not alumni/ae and non-alumni/ae individuals.

Figure 1 depicts conceptual framework of the study.

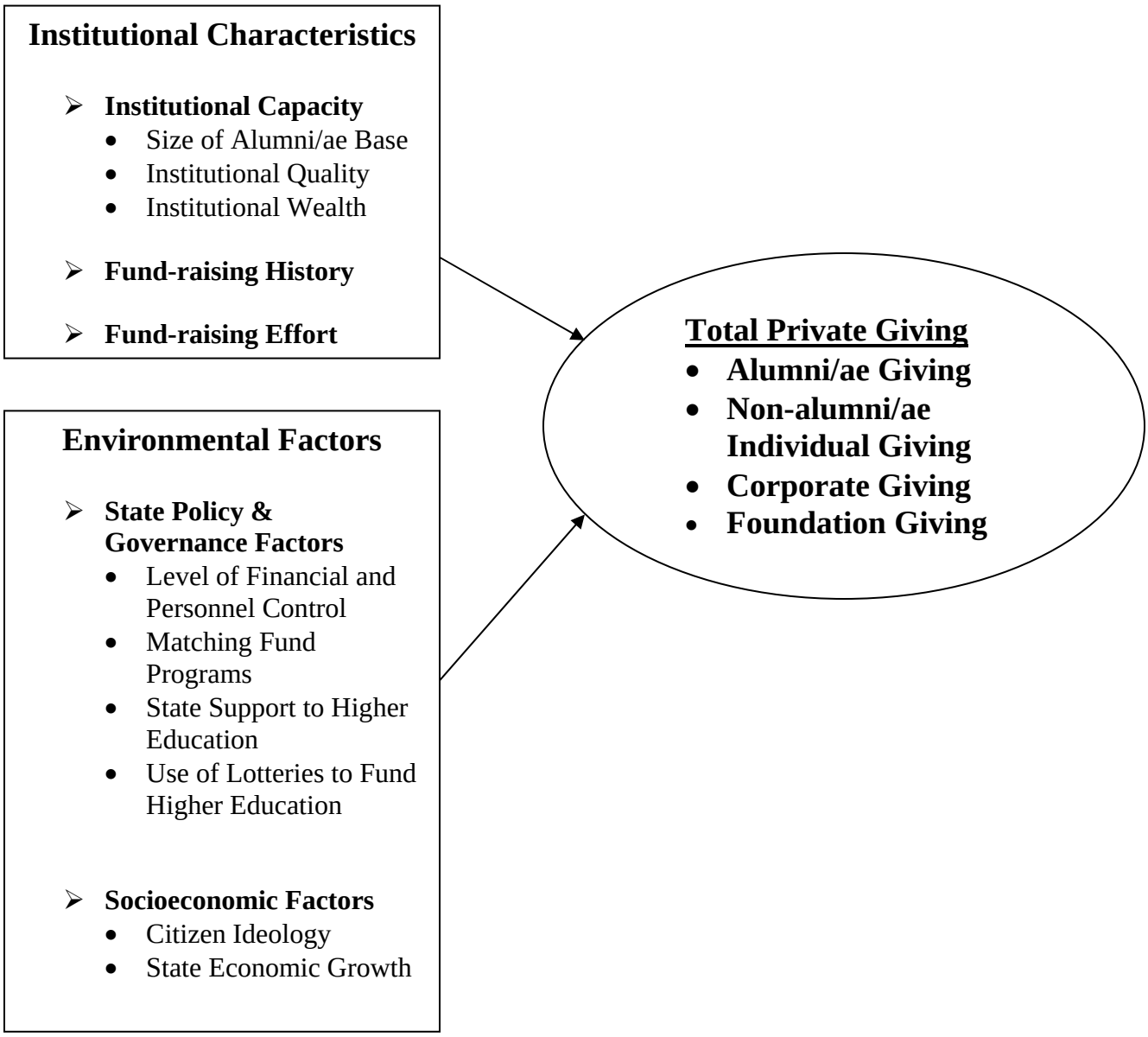

Figure 1. Conceptual Framework

As Figure 1 indicates, private giving to public higher education institutions, at both the aggregate level and the disaggregate level by types of donors, are driven by two types of forces: institutional characteristics and environmental factors. Institutional characteristics consist of (a) institutional capacity, which refers to size of alumni base,

institutional quality and prestige, and institutional wealth, (b) fund-raising history, and (c) fund-raising efforts. Environmental factors consist of (d) state policy and governance factors, which include level of financial and personnel control, matching funds programs, state support to higher education, and use of lotteries to fund higher education, and (e) socioeconomic factors, which include citizen ideology and state economic growth.

CHAPTER IV

RESEARCH METHODS

This chapter is organized into six sections. It begins by describing the variables that correspond with the conceptual framework discussed in the previous chapter, followed by the data sources, the sample description, and the definitions of terms. Further, it outlines how the data are analyzed to answer the research questions of the study and discusses the limitations of the study.

Variables

Dependent Variables

Total private giving from all sources was used as the primary dependent variable. Four submodels were also analyzed, using as dependent variables the private giving of alumni/ae, non-alumni/ae individuals, corporations, and foundations, respectively, to each institution in the study. I used this breakdown because past literature has recognized that there are significant motivational differences between alumni/ae and donors of other groups (Coughlin & Erekson, 1986; Leslie et al., 1983; Leslie & Ramey, 1988; Loessin, Duronio, & Borton, 1988).

Independent Variables

Five clusters of independent variables, institutional capacity, fund-raising history, fund-raising effort, policy and governance factors, and socioeconomic factors, are discussed as follows.

a. Institutional Capacity

In addition to variables to measure number of alumni/ae, institutional quality and prestige, and institutional wealth, two control variables were also included in the category of institutional capacity: the presence of medical school and doctoral/research universities.

Alumni/ae of record -- measures the number of alumni/ae. Alumni of record are former full- or part-time students that received an undergraduate degree and for whom the college or university has a current address. Graduates who earned only a graduate degree are excluded.

Expenditure per FTE -- measures institutional quality. It reflects an institution's commitment to educational quality, independent of institutional prestige consideration. Toutkoushian and Smart (2001) found that the level of spending can have a direct impact on student gains in interpersonal skills and learning and so can be used as a measure of institutional quality.

Flagship university -- was used as a proxy for institutional prestige. A flagship institution historically has been in existence for decades and has been considered the premier institution within a state. The status of flagship institution gives a university public visibility and boosts its eligibility for state and private funding.

Total revenue per FTE -- reflects institutional wealth.

Presence of medical school -- A dummy variable was employed for this variable: 1 if the university has a medical school, 0 otherwise.

Doctoral/research universities -- To operationalize institutional type, the widely-used Carnegie Classification was employed. In Voluntary Support of Education, doctoral/research universities I and doctor/research universities II were collapsed into a single category. For the purpose of study, this categorization was followed, and a dummy variable representing research/doctoral universities was used in the models.

b. Fund-raising History

Endowment per FTE -- Fund-raising history can be measured by the age of development office, but due to the difficulty of obtaining data, endowment per FTE was used as a proxy for fund-raising history.

c. Fund-raising Effort

Proportion of alumni/ae solicited -- was used as an indicator of fund-raising effort. It is the proportion of alumni/ae who receive at least one solicitation during the course of the reporting year. Fund-raising effort can be measured by the size of the fund-raising staff or budget and the level of involvement of the president and trustees in fund-raising programs, but obtaining such information is extremely difficult.

d. Policy and Governance Factors

Consolidated governing board -- Whether the institution is located in a state that has consolidated governing board was used as a proxy for state financial and personnel control. A dummy variable was used to indicate the presence of consolidated governing board.

Constitutional autonomy -- Whether the institution is located in a state that grants constitutional autonomy to pubic higher education institutions in the state was used as another proxy for state financial and personnel control. A dummy variable was used to indicate the presence of constitutional autonomy.

Matching fund programs -- A dummy variable was used to indicate the presence of matching fund programs in a state in each year from 1994-2004.

Lottery scholarship -- A dummy variable was used to indicate whether the state has earmarked lottery funds for higher education in each year from 1994-2004.

State appropriation per FTE -- is an institutional-level variable that indicates state financial support to an institution.

State financial aid per student -- is a state-level variable and an indicator of state support to higher education. It is the combination of state need-based financial aid per student and state merit-based financial aid per student.

State tax fund appropriation for higher education per $1000 of state personal income -- is a state-level variable and an indicator of state support to higher education.

e. Socioeconomic Factors

Besides variables to state economic growth and political culture, region is included in the category of socioeconomic factors as control variable, because some studies found that regional differences influence giving (e. g., Schneider, 1996).

Gross state product per capita -- was calculated by dividing gross state product by total population of a state and measures state economic growth.

Citizen ideology -- The liberal-conservative continuum developed by Berry et al. (1998) was used to capture the concept of citizen ideology. Berry et al. (1998) used

citizen ideology scores for each district to compute an unweighted average for the state as a whole. To measure citizen ideology, Berry et al. (1998) identified the ideological position of each member of Congress in each year using interest group ratings. Then, they estimated citizen ideology in each district of a state using the ideology score for the district's incumbent, the estimated ideology score for a challenger (or hypothetical challenger) to the incumbent, and election results that presumably reflect ideological divisions in the electorate.

Region -- The state's region was denoted by five dummies, for the Northeast (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and West Virginia), Southeast (Alabama, Florida, Arkansas, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia), Midwest (Iowa, Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin), Southwest (Arizona, California, Hawaii, Nevada, New Mexico, Oklahoma, and Texas), and Northwest (Alaska, Idaho, Oregon, and Washington) regions. Rockies/Plains (Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming) was used as omitted variable.

Figure 2 depicts the independent variables that influence the dependent variable.

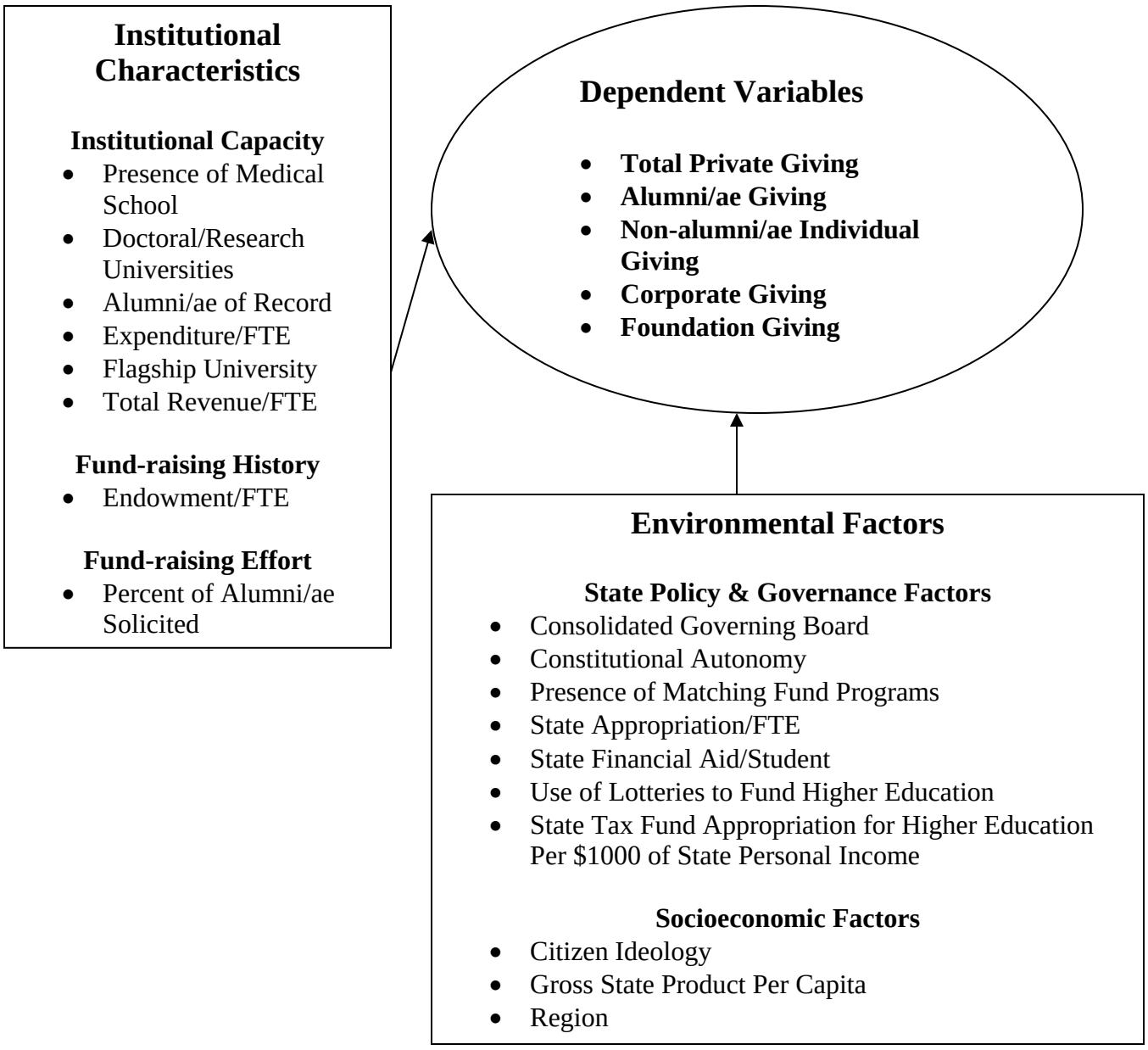

Figure 2. Private Giving Model with Dependent Variables and Independent Variables

Data Sources

Data used in the study were assembled from several sources. Information on voluntary support by source, number of alumni/ae of record, proportion of alumni/ae solicited, endowment per FTE, and expenditure per FTE was derived from the Voluntary Support to Education (VSE) survey developed by the Council for Aid to Education (CAE). Data on total revenue and state appropriation for each institution were taken from Integrated Postsecondary Education Data System (IPEDS). Information on medical schools was taken from Graduate Medical Education Directory 2004-2005. Information on flagship universities was obtained from Rizzo and Ehrenberg (2004). Data on state tax fund appropriation for higher education per $1000 of state personal income were taken from the website www.postsecondary.org. Information on consolidated governing board and constitutional autonomy was derived from Education Commission of the States (1997). Information on matching fund programs was derived from the website of Legal Information Institute of Cornell University, Lexis/Nexis, and the state matching funds report by American Governing Board. Data on need-based and merit-based financial aid were from National Association of State Student Grant and Aid Programs. Data on gross state product were from the Bureau of Economic Analysis. Data on citizen ideology were obtained from Inter-university Consortium for Political and Social Research (ICPSR). Data in dollar terms were adjusted to constant 2004 dollars using the Consumer Price Index (CPI).

Sample

The target population is all public four-year colleges and universities in the United States. The sample of this study consists of public four-year colleges and universities that have participated in the Voluntary Support to Education survey and reported non-null data for the relevant variables used in the study in years from 1994 to 2003 (10-year time period). Public community colleges are excluded from this sample. Each year more than five hundred public four-year universities were invited to participate in the survey, and the response rate is around 55% in each year.

Definition of Terms

Private giving -- is defined in *CASE Management and Reporting Standards (2004)* as the amount of money given to higher education by individuals, foundations, business corporations, religious denominations, and other sources. Excluded are earnings from endowment and other invested funds and support received from federal, state, and local governments and their agencies.

Alumni giving -- is gifts from former students --- full- or part-time, undergraduate or graduate --- who have earned some credit toward one of the degrees, certificates, or diplomas offered by the reporting institution. Non-degree seeking students are not reported in the “alumni” category.

Non-alumni individual giving -- includes gifts from parents, faculty and staff, students (currently enrolled undergraduate, graduate, or non-degree students), and other individuals.

Corporate giving -- refers to gifts from “corporations, partnerships, and cooperatives that have been organized from profit-making purposes, including corporations owned by individuals and families and other closely held companies” (CAE, 2000, p. 48).

Foundation giving -- includes gifts from personal and family foundations and other foundations and trusts that are private tax-exempt entities operated exclusively for charitable purposes.

Research Universities I -- These institutions offer a full range of baccalaureate programs, are committed to graduate education through the doctorate, and give high priority to research. They award 50 or more doctoral degrees each year. In addition, they receive annually $40 million or more in federal support.

Research Universities II -- These institutions offer a full range of baccalaureate programs, are committed to graduate education through the doctorate, and give high priority to research. They award 50 or more doctoral degrees each year. In addition, they receive annually between $15.5 million and $40 million or more in federal support.

Doctoral Universities I -- These institutions offer a full range of baccalaureate programs and are committed to graduate education through the doctorate. They award at least 40 doctoral degrees annually in five or more disciplines.

Doctoral Universities II -- These institutions offer a full range of baccalaureate programs and are committed to graduate education through the doctorate. They award at least ten doctoral degrees annually in three or more disciplines or 20 or more doctoral degrees in one or more disciplines.

Master (Comprehensive) Colleges and Universities I -- These institutions offer a full range of baccalaureate programs and are committed to graduate education through the master's degree. They award at least 40 master's degrees annually in three or more disciplines.

Master (Comprehensive) Colleges and Universities II -- These institutions offer a full range of baccalaureate programs and are committed to graduate education through the master's degree. They award at least 20 master's degrees annually in one or more disciplines.

Baccalaureate (Liberal Arts) Colleges I – These institutions are primarily undergraduate colleges with major emphasis on baccalaureate degree programs. They award 40 percent or more of their baccalaureate degrees in liberal arts fields and are restrictive in admissions.

Baccalaureate (Liberal Arts) Colleges II – These institutions are primarily undergraduate colleges with major emphasis on baccalaureate degree programs. They award less than 40 percent or more of their baccalaureate degrees in liberal arts fields or are less restrictive in admissions.

Methods

Pooled time-series cross-sectional analysis was used to determine those variables most associated with total private giving as proportion of total revenue as well as the level of total private giving and giving from the four sources. In each of the following equation of regression models of the study, $Giving_{it}$ is the total private giving or giving from a source at institution i in period t, and the outcome was specified to be a function

of four sets of variables: (a) variables that vary across institutions and over time (such as endowment per student); (b) variables that vary with time but not across institutions in the same state (such as gross state product per capita); (c) variables that vary across institutions but not over time (such as whether the institution has a medical school); and (d) variables that do not vary across institutions in the same state or over time. All the independent variables, except those that do not vary over time and the three institutional capacity variables (alumni of record, expenditure per FTE, and total revenue per FTE), were lagged one year. The distributions of all dependent variables were skewed because of the disproportionate success of a few institutions. To stabilize the variability of the data set, I used the logarithm of each of the dependent variables and some independent variables.

Group I: Total Private Giving Model

$$\textbf{\textit{Total Private Giving}}_{it} = f\{(\text{Alumni/ae}_{it-1}+\text{Expenditure}_{it-1}+\text{TotalRev}_{it-1}+\text{Endowment}_{it-1}+\text{Alumni/aeSolicited}_{it-1}+\text{StateApprop}_{it-1})+(\text{TaxApprop}_{t-1}+\text{Finaid}_{t-1}+\text{Lottery}_{t-1}+\text{MatchingFunds}_{t-1}+\text{Ideology}_{t-1}+\text{GrossProductPerCapita}_{t-1})+(\text{MedSchool}_{i}+\text{Doctoral/ResearchUniv}_{i}+\text{Flagship}_{i})+(\text{ConsolidatedBoard}_{i}+\text{ConstiAutonomy}_{i})\}$$

Group II: Submodels of Giving From Four Sources

$$\textbf{\textit{Total Alumni/ae Giving}}_{it} = f\{(\text{Alumni/ae}_{it-1}+\text{Expenditure}_{it-1}+\text{TotalRev}_{it-1}+\text{Endowment}_{it-1}+\text{Alumni/aeSolicited}_{it-1}+\text{StateApprop}_{it-1})+(\text{TaxApprop}_{t-1}+\text{Finaid}_{t-1}+\text{Lottery}_{t-1}+\text{MatchingFunds}_{t-1}+\text{Ideology}_{t-1}+\text{GrossProductPerCapita}_{t-1})+(\text{MedSchool}_{i}+\text{Doctoral/ResearchUniv}_{i}+\text{Flagship}_{i})+(\text{ConsolidatedBoard}_{i}+\text{ConstiAutonomy}_{i})\}$$

$$\textbf{\textit{Total Non-alumni/ae Giving}}_{it} = f\{(\text{Alumni/ae}_{it-1}+\text{Expenditure}_{it-1}+\text{TotalRev}_{it-1} +\text{Endowment}_{it-1}+\text{Alumni/aeSolicited}_{it-1}+\text{StateApprop}_{it-1})+(\text{TaxApprop}_{t-1}+\text{Finaid}_{t-1}+\text{Lottery}_{t-1}+\text{MatchingFunds}_{t-1}+\text{Ideology}_{t-1}+\text{GrossProductPerCapita}_{t-1}) +(\text{MedSchool}_{i}+\text{Doctoral/ResearchUniv}_{i}+\text{Flagship}_{i})+(\text{ConsolidatedBoard}_{i}+\text{ConstiAutonomy}_{i})\}$$

$$\textbf{\textit{Total Corporate Giving}}_{it} = f\{(\text{Alumni/ae}_{it-1}+\text{Expenditure}_{it-1}+\text{TotalRev}_{it-1} +\text{Endowment}_{it-1}+\text{Alumni/aeSolicited}_{it-1}+\text{StateApprop}_{it-1})+(\text{TaxApprop}_{t-1}+\text{Finaid}_{t-1}+\text{Lottery}_{t-1}+\text{MatchingFunds}_{t-1}+\text{Ideology}_{t-1}+\text{GrossProductPerCapita}_{t-1}) +(\text{MedSchool}_{i}+\text{Doctoral/ResearchUniv}_{i}+\text{Flagship}_{i})+(\text{ConsolidatedBoard}_{i}+\text{ConstiAutonomy}_{i})\}$$

$$\textbf{\textit{Total Foundation Giving}}_{it} = f\{(\text{Alumni/ae}_{it-1}+\text{Expenditure}_{it-1}+\text{TotalRev}_{it-1} +\text{Endowment}_{it-1}+\text{Alumni/aeSolicited}_{it-1}+\text{StateApprop}_{it-1})+(\text{TaxApprop}_{t-1}+\text{Finaid}_{t-1}+\text{Lottery}_{t-1}+\text{MatchingFunds}_{t-1}+\text{Ideology}_{t-1}+\text{GrossProductPerCapita}_{t-1}) +(\text{MedSchool}_{i}+\text{Doctoral/ResearchUniv}_{i}+\text{Flagship}_{i})+(\text{ConsolidatedBoard}_{i}+\text{ConstiAutonomy}_{i})\}$$

There are two widely-used pooled time-series techniques: the random effects and the fixed-effects models. The random-effects model includes the assumption that the unobserved effect is uncorrelated with each explanatory variable in all time periods, compared with the assumption included in the fixed-effects model that the unobserved effect is correlated with the explanatory variables in any time period. There is some inconsistency among econometricians of when a fixed-effects model should be used and when a random effects model should be used. Kennedy (1992) recommended that

> If the data exhaust the population (e.g., observations on all firms producing automobiles), then the fixed-effects approach, which produces results conditional on the units in the data set, is reasonable. If the data are a drawing of observations from a large population (e.g., a thousand individuals in a city many times that

> size), and we wish to draw inferences regarding other members of that population, the fixed-effects model is no longer reasonable; in this context, use of the random-effects model has the advantage that it saves many degrees of freedom (p. 222).

Hsiao (1986) shared the same view and believed that the random-effects approach is generally more efficient than fixed effects because calculation of the coefficients by this approach makes use of information from both within and between observations. Another view (e. g., Greene, 2001) is that the fixed-effects model should be used if there is empirical evidence of significant correlation between the organization-specific factors or time-specific factors. Otherwise, a random-effects model should be used.

In this study, Hausman test was run to choose between fixed and random effects model. It checks a more efficient model against a less efficient but consistent model to make sure that the more efficient model also gives consistent results. Results of the Hausman test rejected the null hypothesis that the coefficients estimated by the efficient random effects estimator were the same as the ones estimated by the consistent fixed-effects estimator, and thus fixed-effects model was better for this study. Since time-invariant variables cannot be included as independent variables in fixed-effects models, variables that vary across institutions but not over time (such as whether the institution has a medical school) and variables that do not vary across institutions in the same state or over time were not included in the models. Therefore, H_6 in conceptual framework could not be tested in the fixed-effects models. Year fixed effects were used to control for macro-level time varying shocks, and autocorrelation was corrected.

Limitations

The study is limited in several aspects. First of all, because of the limited number of institutions participating in the survey, there is the possibility that the data collected are not representative of all public colleges and universities in the United States. Institutions that participated in the Voluntary Support of Education survey represent a self-selected group, raising the possibility that the institutions not faring well in fund raising may not respond to the survey underlying the report data. The omission of these institutions may have led to a sample not including the weakest institutions.

Second, due to lack of access to relevant data, some institutional variables that may explain variations in voluntary support for colleges and universities are not included. From the existing literature (Cook & Lasher, 1996; Duronio & Others, 1988; Grunig, 1995; Woods, 1987), some variables on fund raising efforts, i.e. expenditure on fund raising, number of advancement professional staff, have a clear and consistent association with different levels of private giving, but information on these variables is very difficult to obtain**.**

Third, correlation matrix exhibited a strong linear relationship among a number of variables in the study. Although the variance inflation factor (VIF) for each explanatory variable is less than 3, the mean VIF is larger than 1, which suggests the presence of multicolliearity (Chatterjee, Hadi, & Price, 2000). When some explanatory variables present such a multicollenearity problem, the relative contributions of those variables may be clouded.

Fourth, an additional limitation is the problem of endogeneity. For example, endowment per FTE, the proxy of fund-raising efforts, can be both a determinant of and determined by private giving. This might cause biased coefficients in the estimate.

Lastly, regression analysis only shows associations and relationships, and therefore cause should not be inferred. By studying quantitative factors alone, it is difficult to fully explain why some institutions raise considerably more money in voluntary support than do other institutions of the same type with roughly equivalent resources and under similar macroeconomic circumstances.

CHAPTER V

FINDINGS

This chapter presents the findings from the cross-sectional, time-series analysis of total private giving as well as private giving from different sources among institutions, followed by discussion of findings by institutional Carnegie Classification. Some independent variables in Figure 2, such as presence of medical school, doctoral/research universities, flagship university, consolidated governing board, and constitutional autonomy, are excluded from the fixed-effects models, as it is assumed that these variables remain constant over time. See Figure 3 for the final model for private giving.

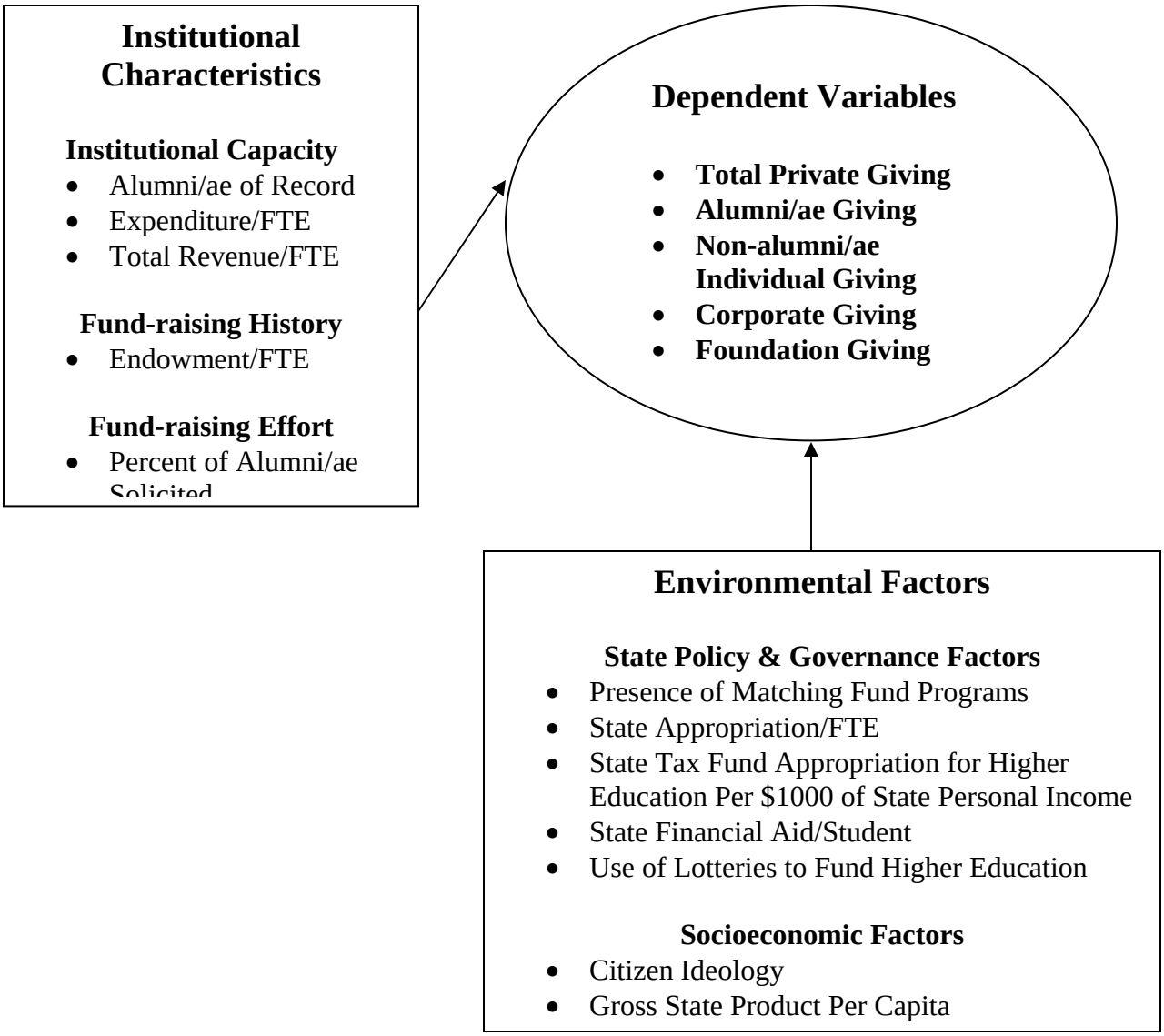

Figure 3. Final Private Giving Model

Results for Total Private Giving Model

The total private giving model shown in Table 4 explained a moderate portion of the overall variance in total private giving (R^2= .30). The correlations and descriptive statistics are presented in the Appendix A and Appendix B.

Table 4: Summary of Fixed Effects Analyses of Total Private Giving to Public Colleges and Universities 1994-2003 (N=1400, R^2= .30)

Institutional Factors	Coefficient	Environmental Factors	Coefficient
Institutional Capacity		State Policy & Governance Factors	
Alumni/ae of Record (log)	.21***	Matching Funds Programs	-.01
Expenditure per FTE (log)	.09***	State Approp. per FTE (log)	.21*
Total Revenue per FTE (log)	.42***	Tax Approp. for Higher Education per $1000 of Personal Income	.08**
Fund-raising History		Lottery Scholarship	.01
Endowment per FTE (log)	.09***	State Financial Aid per Student	.80*
Fund-raising Effort		Socioeconomic Factors	
Percent of Alumni/ae Solicited	-.02	Citizen Ideology	.01*
		Gross State Product per Capita (in thousands)	.06***

* p<=.05 ** p<=.01 *** p<=.001

The regression analysis indicated that all three institutional capacity variables were significant and positive predictors of total private giving. The elasticity of alumni/ae of record was .21, which means that one percent increase in the number of alumni/ae of record would lead to .21 percent increase in total private giving, with other predictors controlled. Institutional quality as measured by expenditure per FTE and institutional wealth as measured by total revenue per FTE both demonstrated

significant positive effects on total private giving, with elasticities of .09 and .42 respectively. Thus, it appears that institutions with higher quality are more successful at raising total private support than institutions with lower quality and that wealthier institutions are more successful at raising private support than less wealthier institutions.

With regard to institutional fund-raising history, endowment per FTE exerted significantly positive influence on total private giving, with elasticity of .09. However, the regression analysis did not find that institutional fund-raising effort reflected by percent of alumni/ae solicited was a significant predictor of total private giving.

Turning to the state governance and policy variables, state appropriation per FTE exerted a statistically significant positive influence on total private giving, with elasticity of .21. Thus, with an increase of one percent in state appropriation per FTE, total private giving to public institutions appeared to rise by .21 percent. This supports Gianneschi's (2004) finding that private giving does not directly replace state appropriations. State tax appropriation for higher education per $1000 of state personal income and state financial aid per student were also positively associated with total private giving. The results counter H_{8a} and H_{8b} by suggesting some crowding-in effect of state support on private donations that institutions received.

Both of the socioeconomic factors, citizen ideology and gross state product per capita, affected total private giving significantly and positively, which support H_9 and H_{10} respectively. Therefore, institutions in states with more liberal citizen ideology or higher gross state product per capita would have higher total private giving than those in states with more conservative citizen ideology or lower gross state product per capita.

Results for Four Submodels of Private Giving from Different Sources

Table 5 to Table 7 present regression estimates for each of the three submodels: alumni/ae giving, nonalumni/ae individual giving, and corporate giving. Since no variable in the foundation giving model was statistically significant, this model is not included in the following discussion. Results for alumni/ae giving, nonalumni/ae individual giving, and corporate giving are examined respectively.

Alumni/ae Giving

The alumni/ae giving model explained 39% of the variation in alumni/ae contributions (Table 5). The elasticity of alumni/ae of record was .24, which indicates that one percent increase in the number of alumni/ae of record leads to increase of alumni/ae giving of .24 percent. Consistent with the findings from Leslie and Ramey's study (1988), alumni/ae giving was not significantly affected by expenditures per FTE, which is the proxy variable for institutional quality. This suggests that alumni/ae donors are more likely to be motivated by their emotional ties with the institution rather than educational benefits for society. Total revenue per FTE had a significant positive effect on alumni/ae giving with elasticity of .40 and appeared to be the main predictor of alumni/ae giving.

Endowment per FTE, which reflects fund-raising history and the overall stock of philanthropic relationships, exhibited a positive effect on alumni/ae giving (.07), though small in magnitude. Institutional effort in fund raising, as proxied by percent of alumni/ae solicited, did not significantly affect alumni/ae contribution.

Four out of five state policy and governance variables (the presence of state matching funds programs, state appropriation per FTE, the presence of lottery scholarship, and state financial aid per FTE) did not affect alumni/ae giving in a significant way. Only state tax appropriation for higher education per $1000 of state personal income had a positive effect on alumni/ae giving (.14).

Lastly, neither factor in socioeconomic influence, citizen ideology or gross state product per capita, had any significant impact on alumni/ae giving. This indicates that alumni/ae donors generally donate for personal rather than ideological and financial reasons.

Table 5: Summary of Fixed Effects Analyses of Total Alumni/ae Giving to Public Colleges and Universities 1994-2003 (N=1398, R^2= .39)

Institutional Factors	Coefficient	Environmental Factors	Coefficient
<u>Institutional Capacity</u>		<u>State Policy & Governance Factors</u>	
Alumni/ae of Record (log)	.24***	Matching Funds Programs	-.03
Expenditure per FTE (log)	.05	State Approp. per FTE (log)	.16
		Tax Approp. for Higher Education per $1000 of Personal	
Total Revenue per FTE (log)	.40**	Income	.14***
		Lottery Scholarship	.00
<u>Fund-raising History</u>		State Financial Aid per Student	.42
Endowment per FTE (log)	.07***		
		<u>Socioeconomic Factors</u>	
<u>Fund-raising Effort</u>		Citizen Ideology	.01
Percent of Alumni/ae Solicited	-.25	Gross State Product per Capita (in thousands)	.02

* p<=.05 ** p<=.01 *** p<=.001

Nonalumni/ae Individual Giving

The nonalumni/ae individual giving model explained 11 percent of the overall variance in nonalumni/ae individual support (Table 6). All of the three institutional capacity variables--alumni/ae of record, expenditure per FTE, and total revenue per FTE--were statistically significant. All these variables had a positive effect on total nonalumni/ae individual giving. The coefficient on alumni/ae of record was .14. This supports H_1 and suggests that institutions with more alumni/ae of record are likely to have more ties with nonalumni/ae individuals such as parents of current students. The coefficient on expenditure per FTE was .10, which implies that nonalumni/ae donors are motivated by considerations of social educational benefits and are more likely to seek out high-quality information as to academic excellence when charitable decisions are made. A positive coefficient of .44 for total revenue per FTE means that a percent increase in total revenue per FTE leads to increase in nonalumni/ae individual giving of .44 percent.

With regard to institutional fund-raising history, endowment per FTE had a significantly positive effect on total nonalumni/ae individual giving, with elasticity of .11. However, fund-raising efforts reflected by percent of alumni/ae solicited, was not significantly related to nonalumni/ae individual giving.

None of the state policy and governance variables affected nonalumni/ae individual giving in a significant way. Both socioeconomic factors were significantly related to nonalumni/ae individual giving: Institutions in states with more liberal citizen ideology tend to get more contributions from nonalumni/ae individuals, and institutions in states with higher state gross product per capita tend to attract more funding from nonalumni/ae individuals.

Table 6: Summary of Fixed Effects Analyses of Total Nonalumni/ae Individual Giving to Public Colleges and Universities 1994-2003 (N=1400, R^2= .11)

Institutional Factors	Coefficient	Environmental Factors	Coefficient
Institutional Capacity		State Policy & Governance Factors	
Alumni/ae of Record (log)	.14**	Matching Funds Programs	-.10
Expenditure per FTE (log)	.10**	State Approp. per FTE (log)	.20
Total Revenue per FTE (log)	.44**	Tax Approp. for Higher Education per $1000 of Personal Income	-.02
		Lottery Scholarship	.13
Fund-raising History		State Financial Aid per Student	.47
Endowment per FTE (log)	.11***		
		Socioeconomic Factors	
Fund-raising Effort		Citizen Ideology	.02**
Percent of Alumni/ae Solicited	.03	Gross State Product Per Capita (in thousands)	.08***

* p<=.05 ** p<=.01 *** p<=.001

Corporate Giving

The corporate giving model explained 24 percent of overall variation in business support (Table 7). The regression analysis showed positive effects of all three institutional capacity variables on corporate giving. Alumni/ae of record had a significant positive effect on corporate giving, with a elasticity of .18. Moreover, one percent increase in expenditure per FTE led to .11 percent increase in corporate giving, and one percent increase in total revenue per FTE led to .38 percent increase in corporate giving.

Institutional fund-raising history as measured by endowment per FTE has a significant positive effect on corporate giving, with elasticity of .08. The indication is that interorganizational links built over time are important in explaining contributions by corporations. However, the regression analysis did not find that institutional fund-

raising effort reflected by percent of alumni/ae solicited was a significant predictor of corporate giving.

None of the state policy and governance variables affected corporate giving in a significant way. Regarding socioeconomic factors, citizen ideology was not significantly related to corporate giving, while gross state product per capita had a significantly positive effect on corporate giving.

Table 7: Summary of Fixed Effects Analyses of Total Corporate Giving to Public Colleges and Universities 1994-2003 (N=1400, R^2= .24)

Institutional Factors	Coefficient	Environmental Factors	Coefficient
<u>Institutional Capacity</u>		<u>State Policy & Governance Factors</u>	
Alumni/ae of Record (log)	.18***	Matching Funds Programs	.13
Expenditure per FTE (log)	.11**	State Approp. per FTE (log)	.11
		Tax Approp. for Higher Education per $1000 of	
Total Revenue per FTE (log)	.38**	Personal Income	.07
		Lottery Scholarship	-.02
<u>Fund-raising History</u>		State Financial Aid per Student	.52
Endowment per FTE (log)	.08***		
		<u>Socioeconomic Factors</u>	
<u>Fund-raising Effort</u>		Citizen Ideology	.01
Percent of Alumni/ae Solicited	-.25	Gross State Product per Capita (in thousands)	.06**

* p<=.05 ** p<=.01 *** p<=.001

Summary of Results

This section summarizes the results for total private giving as well as alumni/ae giving, nonalumni/ae individual giving, and corporate giving. The complete results for these estimates are presented in Appendix C.

The empirical results for this research reveal that institutional characteristics significantly and importantly influence the level of private giving public colleges and universities receive. Both alumni/ae of record and total revenue per FTE had positive impact on total private giving as well as alumni/ae giving, nonalumni/ae individual giving, and corporate giving. Consistent with previous research (i.e. Caboni, 2003; Smith & Ehrenberg, 2003; Woods, 1987), the results for the study suggest that most donors like to give to thriving institutions and that institutions at the top of the institutional hierarchy enjoy accumulative advantage. Expenditure per FTE had positive influence on total private giving as well as nonalumni/ae individual giving and corporate giving, but no significant influence on alumni/ae giving. This may reflect a belief by nonalumni/ae individuals and corporations that institutions able to offer especially high quality educational experiences are worthy of support. Institutions with higher endowment per FTE raise more total private giving as well as alumni/ae giving, nonalumni/ae individual giving, and corporate giving than other institutions, which contradicts Olsen's (2004) finding that private giving declines when endowment increases. This implies that longstanding ties between institutions and donors are important and that wealthy institutions that have been successful at fund raising in the past are more likely to be successful at raising private support in the future. Percent of

alumni/ae solicited, the proxy for current fund-raising efforts, did not significantly influence total private giving or giving from any source.

The state-level variables in general had weaker effects than institutional characteristics. Local-level factors may be more important than state-level factors because individuals may be more affected by and may want more strongly to affect what transpires in their local communities. Bielefeld, Rooney, and Steinberg (2005) noted that the effects of state-level contextual variables were likely to be weaker than at lower-level regional or metropolitan levels because of "propinquity effects", and less than the federal-level variables because of their "sheer scale effects". It is possible that some of the variables that were not significant at the state level may, in fact, be significant statistically or empirically at more local or federal level. With regard to state governance and policy variables, state appropriations per FTE, state tax appropriation for higher education per $1000 of state personal income, and state financial aid per student were significantly and positively related to overall private giving. But at the disaggregated level, only in the case of alumni/ae giving does state tax appropriation for higher education per $1000 of state personal income significantly increase giving. Both of the socioeconomic variables, citizen ideology and gross state product per capita, had small but positive effects on total private giving and nonalumni/ae individual giving. Neither of the socioeconomic variables had any influence on alumni/ae giving, and only gross state product per capita was significantly related to corporate giving.

Comparison of results for private giving across the three donor groups provides some interesting insights. There are striking similarities between the results for nonalumni/ae individual giving and corporate giving. In this analysis, both

nonalumni/ae individual giving and corporate giving were positively associated with alumni/ae of record, expenditure per FTE, total revenue per FTE, endowment per FTE, and gross state product per capita, while alumni/ae giving was not affected by expenditure per FTE or gross state product per capita. This suggests that motivations of alumni differ significantly from those of the other donor groups. Alumni/ae appear to be more likely to be motivated by social and emotional links with their institutions. Corporation donors are generally concerned with fostering development of a more productive labor force in a state, and nonalumni/ae individuals are motivated by a desire to provide educational benefits for society. Therefore, charitable decisions of these two donor groups are likely to be influenced by objective information about institutional quality and reputation.

Results for Private Giving by Carnegie Classification

The fixed-effects regression models for private giving were run separately and independently for public colleges and universities of each Carnegie classification. The results for these estimates are presented in Appendix D to Appendix H. This section discusses the results for private giving to Public Research I Universities, since other models did not reveal any statistically significant effects.

As shown in Table 8, number of alumni/ae of record was the most significant predictor of total private giving, alumni/ae giving, nonalumni/ae individual giving, and corporate giving to Public Research I universities. The magnitudes of the coefficients demonstrate that the private giving a Public Research I university can raise is largely determined by the number of alumni/ae its development office can solicit.

The state governance and policy variables did not perform as expected. None of these variables affected total private giving or any source of giving to public Research I universities.

Interestingly, citizen ideology did not demonstrate any significant influence on corporate giving to all public colleges and universities, but a significant and positive effect on corporate giving to public Research I universities. This suggests that corporations located in states with a liberal sentiment tend to donate to Research I universities than corporations in states with a more conservative sentiment. Gross state product per capita had significant positive relationship with total private giving and alumni/ae giving.

Table 8: Summary of Fixed Effects Analyses of Private Giving to Public Research I Universities 1994-2003

	Total Private Giving	Alumni/ae Giving	Nonalumni/ae Individual Giving	Corporate Giving	Foundation Giving
Institutional Capacity					
Alumni/ae of Record (log)	1.07***	.90***	.99***	1.13***	.09
Expenditure per FTE (log)	.04	-.01	.07	.04	.02
Total Revenue per FTE (log)	.19	.34	.16	.03	.03
Fund-raising History					
Endowment per FTE (log)	.02	-.01	.08	-.01	.02
Fund-raising Effort					
% Alumni/ae Solicited	-.31	-.39	-.05	-.57	-.02
State Policy & Governance Factors					
Matching Funds Programs	-.08	.01	-.20	-.04	-.05
State Approp. per FTE (log)	-.06	-.19	-.11	.17	-.27
Tax Approp. for Higher Ed/$1000 of Personal Income	-.01	.06	-.06	-.07	-.01
Lottery Scholarship	.09	.10	.06	.15	-.35
State Financial Aid per Student	.87	-.38	.14	1.14	1.80
Socioeconomic Factors					
Citizen Ideology	.01	.00	.01	.02**	.00
Gross State Product per Capita (in thousands)	.04*	.06*	.04	-.01	.06
R Square-Overall	.31	.34	.21	.19	.05
N	287	287	287	287	287

* p<=.05 ** p<=.01 *** p<=.001

CHAPTER VI

SUMMARY, DISCUSSION, IMPLICATIONS, AND SUGGESTIONS FOR FUTURE RESEARCH

This chapter starts with a brief summary of the background, the method, and the findings of the study, followed by a discussion of the findings relative to the hypotheses and the implications that can be drawn from them. The last section of the chapter offers recommendations for future research.

Summary of the Study

Since federal and state appropriations provide only minimum funding necessary for the operation of institutions, American public colleges and universities have grown increasingly dependent on private giving over the last two decades. Many public colleges and universities have developed programs that successfully increase the amount of voluntary support that institutions receive, and private fund raising has increasingly become a mechanism for competitive advantage for public colleges and universities. Still, compared with private institutions, most public colleges and universities lack experience in fund raising, and research in this area has not kept pace with the tremendous expansion of institutional fund-raising effort of public higher education institutions. Given the current knowledge of private giving to public higher education, general frameworks that can provide guidance to policy makers, development officers, and higher education administrators are needed. A thorough understanding of variables that may influence private giving can help public higher

education institutions become more strategic and sophisticated in their efforts to secure private support which should ultimately enhance the overall quality of the institution.

This study provided some useful, empirically-based insights into the institutional and environmental factors propelling voluntary support of public higher education institutions. It used panel data from public four-year colleges and universities from 1994-2003, a data set that is richer and possibly better suited to studying private giving to public higher education institutions than most prior empirical studies. Results of the Hausman test suggested that a fixed-effects model was the better choice for analyzing private giving to colleges and universities over time. Using a fixed-effects approach controlled aspects of the institution that do not change during the 10-year period studied and helped alleviate possible omitted variable bias in the model. Dummy variables were created for each year to control for the influence of time-specific factors, and autocorrelation was corrected.

This study presented compelling evidence that private giving, an important and growing source of finance for institutions of higher education, is sensitive to a variety of the unique features of that institution and of the environment in which the institution is embedded in the long run. In this analysis, the following institutional factors were statistically significant: Alumni/ae of record, expenditure per FTE, total revenue per FTE, endowment per FTE. The following environmental factors were statistically significant: State appropriation per FTE, state tax appropriation for higher education per $1000 of state personal income, state financial aid per student, citizen ideology, and gross state product per capita. With the exception of foundation giving, each model's highly

significant overall F statistic implies that the explained variation (i.e., adjusted R^2) in private giving, the dependent variable, is statistically significant.

Discussion

This section summarizes the results relative to their respective hypotheses regarding institutional capacity, fund-raising history, fund-raising effort, state governance and policy factors, and socioeconomic factors.

Institutional Capacity

H_1: Institutions with more alumni/ae of record will attract higher private giving from all four types of donors and higher total private giving.

H_1 was largely supported by the results. The size of alumni/ae of record demonstrated positive effect on total private giving, alumni/ae giving, nonalumni/ae individual giving, and corporate giving. This finding is consistent with Leslie and Ramey's (1988) suggestion that alumni/ae are critical in providing institutions with significant linkages to nonalumni/ae individuals and corporations, thereby increasing institutions' likelihood of receiving support from those donor groups.

H_2: Institutions of greater institutional quality and prestige will receive higher total private giving and higher private giving from all four types of donors.

H_2 was partially supported. The effect of institutional prestige reflected by the status of flagship university could not be examined in the fixed-effects models of this study. Consistent with the hypothesis, institutional quality measured by expenditure per FTE demonstrated positive effect on total private giving, nonalumni/ae individual

giving, and corporate giving. On the other hand, it had no statistically significant effect on alumni/ae giving. Previous studies that used expenditure per FTE as an indicator of institutional quality yielded similar results to current study (Leslie & Ramey, 1988; Loessin, Duronio, & Borton, 1988). However, a few studies employed variables other than expenditure per FTE as indicators of institutional quality and found that alumni/ae giving was also positively affected by institutional quality (Badde & Sundberg, 1996; Coughlin & Erekson, 1986; Cunningham & Cochi-Ficano, 2002).

H_3: Institutions of greater institutional wealth will receive higher private giving from all four types of donors and higher total private giving.

H_3 was largely supported by the results. Higher total revenue per FTE, a measurement of institutional wealth, lead to higher total private giving and private giving from alumni/ae, nonalumni/ae individuals, and corporations. This adds support to previous findings that wealthier institutions receive higher levels of giving from all sources and that accumulative advantage does exist within the public higher education system (Caboni, 2003; Smith & Ehrenberg, 2001). Those universities that already enjoy high levels of revenue are more likely to increase their institutional wealth in their subsequent efforts to attract voluntary support.

Fund-raising History

H_{4a}: Institutions with greater endowment per FTE will attract more private giving from all four types of donors and more total private giving.

H_{4b}: Increase in endowment per FTE will lead to higher private giving from all four types of donors and higher total private giving.

H_{4a} and H_{4b} were largely supported by the results. Institutions with greater endowment per FTE attracted more total private giving and more private giving from all types of donors except foundations. Increases in endowment per FTE led to more total private giving and more private giving from all types of donors except foundations. Since endowment reflects the stock of philanthropic relations an institution has over years, this result adds additional evidence to previous findings that fund-raising history is an important characteristic of fund-raising effectiveness in higher education institutions (Caboni, 2003; Duronio, et al., 1988; Loessin, Duronio, & Borton, 1988).

Fund-raising Effort

H_{5a}: Institutions with greater fund-raising effort will attract higher private giving from all four types of donors and higher total private giving.

H_{5b}: Increase in fund-raising effort will lead to higher private giving from all four types of donors and higher total private giving.

H_{5a} and H_{5b} were not supported. Institutional fund-raising effort, as reflected by percent of alumni/ae solicited, did not significantly affect any of the types of giving considered. As suggested by Leslie and Ramey (1988), current efforts by institutions to add to the stock of useful relationships with alumni/ae donors have very little immediate effect.

State Policy and Governance Factors

H_7: Institutions in states with matching fund programs will have higher total private giving and higher giving from all four types of donors than those in states without matching fund programs.

H_7 was not supported. The hypothesized positive effect of matching fund programs on private donations was not significant for any of the types of giving considered.

H_{8a}: Greater state support to higher education will lead to less private giving from all four types of donors and less total private giving.

H_{8b}: Increase in state support to higher education will lead to lower private giving from all four types of donors and lower total private giving.

H_{8c}: Institutions in states that use lotteries to fund higher education will attract less total private giving and less giving from all four types of donors.

$H_{8a,}$ H_{8b}, and H_{8c} were not supported. Contrary to the hypotheses, state support had some crowding-in effect on total private giving and alumni/ae giving. The presence of a lottery scholarship in a state had no effect on any of the aspects of giving considered.

In general, past research found that government funding crowded out private donations to non-profit organizations (Brooks, 2000; Steinberg, 1993). The current study, along with a growing number of studies (e. g. Frumkin & Kim, 2001; Gianneschi, 2004; Marudas & Jacobs, 2004; Okten & Weisbrod, 2000) detected significant crowding-in effect of government subsidies on private donations to higher education.

This suggests that government support to higher education may be a positive signal to potential donors, thereby crowding in private donations.

Socioeconomic Factors

H_9*: Institutions in states in which citizens are more liberal ideologically will have higher total private giving and higher giving from all four types of donors than those in states in which citizens are more conservative ideologically.*

H_9 was partially supported. Institutions in states in which citizens are more liberal ideologically tend to have higher total private giving and higher nonalumni/ae individual giving. This confirms Wolpert's (1995) finding that giving rates are higher where the political and cultural ideology is liberal rather than conservative.

H_{10}: State economic growth will lead to higher total private giving and higher giving from non-alumni/ae/ae individuals, corporations, and foundations, but not alumni/ae/ae.

H_{10} was largely supported. Increase in gross state product per capita led to higher total private giving and higher giving from non-alumni/ae individuals and corporations, but did not have any effect on alumni/ae giving. This supports Gianneschi's (2004) and Leslie and Ramey's (1988) findings and implies that non-alumni/ae individual giving and corporate giving expand with improved economic conditions, and these two groups of donors tend to donate to public higher education institutions when the ability to give is high.

Implications

This study postulates a conceptual framework for the determinants of private giving to public higher education institutions, and its results have some notable theoretical and practical implications.

Theoretical Implications

From a theoretical perspective, this study suggests a general conceptual framework for explaining factors that influence private giving to public colleges and universities and adds an empirical dimension to current literature by relating institutional characteristics and environmental factors to institutions' success in obtaining private giving. It portrays private giving from an institutional and systems perspective and shows the scope and complexity of fund raising in public higher education institutions: Private fund raising is a dynamic process, in which both institutional and environmental factors exert differing levels of influence on private giving an institution receives. While public higher education institutions vary widely in their characteristics and larger environment, the framework nonetheless provides administrators with a tool for assessing the relative strengths and weaknesses of their institutions regarding fund-raising potential and capability. At the same time, the results highlight the difficulties of using quantitative factors alone to attempt to fully explain why some institutions raise considerably more money in voluntary support than do other institutions of the same type with roughly equivalent resources and under similar political and socioeconomic circumstances.

Practical Implications

From a practical perspective, the findings of the study yield some insights of interest to policymakers, institutional development officers, and administrators.

There are implications for higher education funding at the state level for policymakers. To begin, policymakers should be aware that state appropriations to higher education institutions do not have any countervailing effect on the level of total private giving public higher education institutions receive. This study provides evidence of positive impacts from state support on total private giving to public higher education institutions, suggesting that donors may not respond to institutional financial shortfalls resulting from relative reduction in state support. Conversely, lower state support is associated with reduced private giving. Therefore, policymakers should recognize that there is no substitution for healthy state support for public colleges and universities: it appears that, to achieve the goal of providing high-quality public higher education, states must pursue, in effect, a de facto public/private partnership.

Furthermore, policymakers should take into account that stratification does exist among public colleges and universities and that institutions have different abilities of raising private funds. Systematic fund-raising advantages are accruing to those institutions with high levels of total revenue, which are likely to raise significantly more money than other institutions. Therefore, states should support needier institutions facing a disadvantage in developing voluntary support. Helping these lower-hierarchy institutions to increase their fund-raising capabilities seems a worthy state investment.

Institutional development professionals and university administrators can take the results forthis study into account in positioning their institutions favorably in fund

raising to maximize their private giving. First, the study finds that institutional quality is a fundamental part of the fund-raising mix, and the implication of this finding for development officers and administrators is that they should aim the institution's future growth toward maintaining and enhancing its quality of education. If an institution does not have something of substance to sell to donors, such as commitment to maintaining quality or a commitment to achieving quality, it probably will not be able to raise the funds for which it is searching. Also, this finding can be interpreted as evidence of a feedback link between the educational experience and the long-term financial well being of the institution. University administrators should know that current financial choices may have some significant effects on subsequent aggregate private giving. Production of high-quality education experience by increasing expenditure per FTE may enhance an institution's reputation and therefore generate more donations from certain types of donors. Initiatives that add educational values by, say, increasing the faculty-student ratio, might result in larger donative flows from nonalumni/ae individuals or corporations. On the other hand, an institution that compromises the quality of its current educational product puts future donative revenue flows at risk.

Second, development officers and administrators should strive to become excellent financial managers of their institution's endowment. It is important to note that endowment and private giving are found to be complementary in this study. The size of an institution's endowment can be reflected in the fund-raising programs and the investment policies of the institution. With effective fund-raising strategies and wise investment policies, institutions can enlarge their endowments, thereby increasing their institution's overall wealth.

Third, it is important for fund-raising officers and institutional leaders to be aware of the influences of environmental factors. This study shows how larger environments might influence giving levels and helps to explain why institutions of similar characteristics but in different contextual circumstances may have different levels of giving. Knowing what impact these large factors have on private giving will enable development officers to predict what certain changes are likely to mean for giving levels. Therefore, administrators should strive to develop a big-picture, integrated view of institutional characteristics and environmental forces in order to utilize the potential of their institution and to achieve fund raising success. For example, in terms of citizen ideology, giving is higher in states with more liberal ideology. Colleges and universities, therefore, could solicit gifts in communities where the liberal citizen ideology is more prevalent. Additionally, development officers should pay attention to the context of their institutions when transferring certain types of fund-raising programs from other institutions. Differences in number of alumni/ae, fund-raising tradition, location, etc. play critical roles in fund-raising outcomes, and this means that fund-raising results at one institution are not automatically replicable at another institution. However, institutions of similar quality, tradition, and mission may have better chances of such replication.

Fourth, another implication for fund-raising professionals in higher education involves targeted marketing: when dealing with different donors, different fund-raising strategies should be used and different institutional characteristics should be stressed. The results for the study suggest that different donor groups have different motivations for donation. It also demonstrates that different types of donors have different

considerations when they make contributions. For example, nonalumni/ae individuals and corporations tend to seek financial association with institutions in prospering areas, while alumni/ae contribute regardless of levels of state economic development. Therefore, development officers should monitor economic factors regularly and solicit corporations and nonalumni individuals diligently when economy is good. In addition, the results for the study suggest that when making appeals to nonalumni/ae individuals and corporations, development officers should highlight the appropriate characteristics of the institution that emphasize its quality. Less prestigious institutions should focus more effort on alumni/ae, since they do not seem to be influenced by institutional quality. Development offices can employ some techniques to enhance alumni/ae's emotional ties with the institution, such as singling out an alumnus or alumna for an honor and publicizing homecoming activities.

Fifth, institutional development administrators should set attainable goals for fund raising. According to the results for this study, elite institutions at the top of the institutional hierarchy and with well-established fund-raising programs are likely to attract large amount of private funds. In their quest for more private giving, institutions should be aware that it takes time to develop fund-raising programs and that it takes money as well as the dedication of the administrators and faculty to raise the quality of education that an institution can offer.

Lastly, university leaders should seek to increase state support to higher education, noting that this is likely to also result in higher levels of giving. No evidence of crowding-out effect of state support was found at the aggregate or disaggregate level of private giving in this study. On the contrary, state support was found to complement

private giving to public higher education institutions. State appropriation might be viewed as proof of quality or reputability, especially for institutions that are not especially well known. This suggests that development officers can articulate this information in their fund-raising campaign statement to reassure donors. Also, institutions can intensify their fund-raising efforts when state support to higher education is improving.

Directions for Future Research

Future research can build on the methods and findings of this study in a number of ways. First, future studies should be conducted to include less tangible factors potentially influencing private giving: the involvement of president and trustees, the leadership of chief development officer, the presence of fundraising campaign, the quality of development staff, the organizational structure of the development offices (whether it is decentralized or centralized, the number of development officers, and the amount of development budget, etc.), and the tradition of voluntary support in an institution. In addition, it will be informative to include measures that indicate the ecology of higher education of a state, such as public/private mix and two-year/four-year institutions mix, and measures that indicate athletic success of an institution, such as basketball winning percentage and football winning percentage.

Second, another area of further research concerns the role played by institutions in soliciting donations and the effectiveness of their fund-raising efforts. Questions for exploration include: What influences does college and university spending on alumni/ae relations and fund-raising activities have on private giving? Is the pursuit of

private giving cost effective for an institution? Collection of such data in the future would be useful to provide colleges and universities statistical information of the effectiveness of their fund-raising programs. The addition of these variables would further enhance the results for studies concerning private giving to higher education. As more information is developed relative to college and university characteristics and behaviors, development offices can develop more effective ways to generate private giving.

Third, studies of the impact of state policy on private fund raising on a state-by-state basis would provide additional insight into dynamics of fund raising in public colleges and universities. Although this study failed to find any relationship between state matching funds programs and private giving, there is evidence that state policy in support of private fund raising has an impact on the amount of gift income received by public colleges and universities (Council for Advancement and Support of Education, 2004; Council for Education Policy Research and Improvement, 2001; Knapp, 2002). Future research should be conducted to further test this hypothesis.

Fourth, more research should be conducted on the total capacity of the economy to support fund-raising and the impact of the demands of charitable giving from other areas on private giving to higher education, since higher education fund-raising is influenced by societal attitudes toward philanthropy and the competition from other non-profit organizations (Brewer, Gates, & Goldman, 2001).

Lastly, researchers should take a holistic focus on the complex fund-raising process and seek to generate, construct, and synthesize theories that explain or describe higher-education fund raising through an incorporation of donor profiling information,

institutional, and environmental information. Most analyses of donor behaviors are limited to single institutions, and much remains to be learned about donor behaviors. There are some difficulties in obtaining data on giving to higher education. The environmental factors of the study were measured at the state level instead of local community level, since data at this level were most readily available for this analysis. As mentioned before, donors may be more strongly influenced by factors closest to them. Institutions should seek to collect data on environmental factors at the levels most important to them, such as the metropolitan level, and assess these factors in conjunction with institutional factors and different donor group characteristics. Doing so will enable analysts to better test propositions about giving to higher education.

Conclusions

This study has provided an initial effort to determine whether selected institutional characteristics and environmental factors influence a public higher education institution's ability to raise private giving and to determine the implications on fund-raising theories and higher education practices.

The results for the study clearly showed the amount of private giving a public higher education institution receives is significantly influenced by certain institutional characteristics and environmental factors. Generally, private giving makes the affluent and successful institutions more so, and its ability to make up for serious shortfalls in governmental revenue is very limited and can not be achieved in a short time. Still, private giving is important in enhancing institutional excellence and needs to be vigorously pursued. Leaders in public colleges and universities should make long-term

strategic plans to raise private support and meanwhile seek to generate revenues from other sources through a variety of initiatives.

APPENDIX A: Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
Total Private Giving (log)	10.40	19.59	15.87	1.56
Total Alumni Giving (log)	6.40	18.65	13.94	1.91
Total Nonalumni Giving (log)	.00	18.36	14.23	1.65
Total Corporation Giving (log)	8.24	18.64	14.37	1.77
Total Foundation Giving (log)	.00	18.84	13.48	2.55
Alumni of Record (log)	.00	12.93	10.88	1.02
Expenditure per FTE (log)	.00	11.39	9.46	.64
Total Revenue per FTE (log)	7.61	12.26	9.91	.49
Endowment per FTE (log)	.00	11.52	8.01	1.46
% Alumni Solicited	.00	1.00	.16	.10
Matching Funds Programs	.00	11.23	8.83	.71
State Approp. per FTE (log)	2.87	19.46	9.10	2.50
Tax Approp. for Higher Ed/$1000 of Personal Income	.00	1.00	.19	.39
Lottery Scholarship	.00	1.00	.08	.27
State Financial Aid Per FTE	.00	.88	.26	.20
Citizen Ideology	13.75	86.48	48.47	11.95
Gross State Product Per Capita (in thousands)	22416.45	52250.94	35952.56	5060.47
Valid N (listwise)	1702	1702	1702	1702

APPENDIX B: Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Total Private Giving (log)	1.00															
2. Total Alumni Giving (log)	.83(**)															
3. Total Nonalumni Giving (log)	.87(**)	.66(**)														
4. Total Corporate Giving (log)	.93(**)	.73(**)	.77(**)													
5. Total Foundation Giving (log)	.80(**)	.59(**)	.67(**)	.73(**)												
6. Alumni of Record (log)	.74(**)	.77(**)	.62(**)	.71(**)	.56(**)											
7. Expenditure per FTE (log)	.53(**)	.49(**)	.44(**)	.48(**)	.43(**)	.35(**)										
8. Total Revenue per FTE (log)	.60(**)	.49(**)	.52(**)	.53(**)	.51(**)	.37(**)	.59(**)									
9. Endowment per FTE (log)	.68(**)	.64(**)	.60(**)	.57(**)	.55(**)	.41(**)	.48(**)	.55(**)								
10. % Alumni Solicited	.13(**)	.29(**)	.09(**)	.10(**)	.04	.15(**)	.13(**)	.10(**)	.11(**)							
11. Matching Funds Programs	.29(**)	.21(**)	.25(**)	.28(**)	.22(**)	.20(**)	.27(**)	.47(**)	.18(**)	.03						
12. State Appro per FTE (log)	.15(**)	.12(**)	.15(**)	.18(**)	.11(**)	.06(*)	.07(**)	.07(**)	.13(**)	.04	.14(**)					
13. Tax Appro for Higher Ed/$1000 of Personal Income	-.01	.05(*)	-.03	.01	-.06(*)	-.01	.01	.02	.04	.02	.06(*)	-.01				
14. Lottery Scholarship	.12(**)	.11(**)	.09(**)	.13(**)	.07(**)	.08(**)	.08(**)	.10(**)	.14(**)	-.04	.12(**)	.02	.17(**)			
15. State Financial Aid Per FTE	-.18(**)	-.06(**)	-.19(**)	-.20(**)	-.16(**)	-.03	.00	.03	-.16(**)	.08(**)	-.01	-.37(**)	-.11(**)	.15(**)		
16. Citizen Ideology	-.20(**)	-.16(**)	-.19(**)	-.20(**)	-.17(**)	-.10(**)	.00	.02	-.22(**)	-.01	-.01	-.52(**)	.02	-.18(**)	.44(**)	
17. Gross State Product Per Capita (in thousands)	-.12(**)	-.15(**)	-.12(**)	-.11(**)	-.04	-.02	-.02	.00	-.15(**)	-.10(**)	.01	-.52(**)	.12(**)	-.11(**)	.42(**)	.51(**)

APPENDIX C: Summary of Fixed-Effects Analyses of Private Giving to Public Colleges Universities 1994-2003

	Total Private Giving		Alumni/ae Giving		Nonalumni/ae Individual Giving		Corporate Giving		Foundation Giving	
Alumni/ae of Record (log)	.21	***	.24	***	.14	***	.18	***	.17	
Expenditure per FTE (log)	.09	***	.05		.10	***	.11	***	.07	
Total Revenue per FTE (log)	.42	***	.40	***	.44	***	.38	***	.43	
Endowment per FTE (log)	.09	***	.07	***	.11	***	.08	***	.10	
% Alumni/ae Solicited	-.02		-.25		.03		-.25		1.20	
Matching Funds Programs	-.01		-.03		-.10		.13		.10	
State Approp. per FTE (log)	.21		.16		.20		.11		.13	
Tax Approp. for Higher Ed/$1000 of Personal Income	.08	**	.14	***	-.02		.07		-.01	
Lottery Scholarship	.01		.00		.13		-.02		.15	
State Financial Aid per Student	.80	**	.42		.47		.52		-.89	
Citizen Ideology	.01	*	.01		.02	**	.01	**	.02	*
Gross State Product Per Capita (in thousands)	.06	***	.02		.08	***	.06	**	.06	
Dummy 1996	1.34	***	1.47	***	.56	***	2.10	***	.77	
Dummy 1997	1.84	***	1.99	***	.84	***	2.67	***	1.16	
Dummy 1998	2.02	***	2.19	***	.90	***	2.79	***	1.18	
Dummy 1999	2.00	***	2.24	***	.77	***	2.81	***	1.31	
Dummy 2000	2.01	***	2.33	***	.74	***	2.79	***	1.49	
Dummy 2001	2.03	***	2.41	***	.72	***	2.83	***	1.69	
Dummy 2002	2.02	***	2.35	***	.66	***	2.84	***	1.64	
Dummy 2003	1.92	***	2.22	**	.80	***	2.94	***	1.48	
Constant Terms	.42	***	.66	*	.20	***	.17	***	.62	
R Square-Overall	.30		.39		.11		.24		.23	
N	1400		1398		1400		1400		1400	

* p<=.05 ** p<=.01 *** p<=.001

APPENDIX D: Summary of Fixed-Effects Analyses of Private Giving to Public Research I Universities 1994-2003

	Total Private Giving		Alumni/ae Giving		Nonalumni /ae Individual Giving		Corporate Giving		Foundation Giving	
Alumni/ae of Record (log)	1.07	***	.90	***	.99	***	1.13	***	.09	
Expenditure per FTE (log)	.04		-.01		.07		.04		.02	
Total Revenue per FTE (log)	.19		.34		.16		.03		.03	
Endowment per FTE (log)	.02		-.01		.08		-.01		.02	
% Alumni/ae Solicited	-.31		-.39		-.05		-.57		-.02	
Matching Funds Programs	-.08		.01		-.20		-.04		-.05	
State Approp. per FTE (log)	-.06		-.19		-.11		.17		-.27	
Tax Approp. for Higher Ed/$1000 of Personal Income	-.01		.06		-.06		-.07		-.01	
Lottery Scholarship	.09		.10		.06		.15		-.35	
State Financial Aid per Student	.87		-.38		.14		1.14		1.80	
Citizen Ideology	.01		.00		.01		.02			
Gross State Product Per Capita (in thousands)	.04	*	.06	*	.04		-.01		.06	
Dummy 1996	.18		-.01		-.01		.05		-5613.56	***
Dummy 1997	.33		.12		.20		.10		-2390.11	***
Dummy 1998	.34		.26		.17		.07		-1012.65	***
Dummy 1999	.26		.26		.03		.02		-424.18	***
Dummy 2000	.33		.29		.10		.06		-172.62	***
Dummy 2001	.35		.34		.06		.20		-65.26	***
Dummy 2002	.25		.24		-.10		-.09		-19.21	***
Constant Terms	.86	***	1.03		.58		.75		-.07	***
R Square-Overall	.31		.34		.21		.19		.05	
N	287		287		287		287		287	

* p<=.05 ** p<=.01 *** p<=.001

APPENDIX E: Summary of Fixed-Effects Analyses of Private Giving to Public Research II Universities 1994-2003

	Total Private Giving	Alumni/ae Giving	Nonalumni /ae Individual Giving	Corporate Giving	Foundation Giving
Alumni/ae of Record (log)	-.06	-.34	-.47	.20	-.40
Expenditure per FTE (log)	.29	.40	-.11	-.12	.19
Total Revenue per FTE (log)	1.01	-.79	.04	1.92	-1.93
Endowment per FTE (log)	.07	.33	-.15	.12	-.04
% Alumni/ae Solicited	.04	-.06	-.21	.49	1.46
Matching Funds Programs	.11	-.07	.13	.43	-.23
State Approp. per FTE (log)	.01	1.30	.06	-1.58	1.77
Tax Approp. for Higher Ed/$1000 of Personal Income	.04	.00	-.07	.05	.03
Lottery Scholarship	-.21	.28	.67	-.62	1.23
State Financial Aid per Student	-.11	1.30	-.25	-1.15	-.97
Citizen Ideology	.00	.00	.01	.01	-.04
Gross State Product Per Capita (in thousands)	-.08	-.17 *	-.02	-.03	-.20
Dummy 1996	14.44	18.62	18.95	7.23	26.36
Dummy 1997	14.49	19.14	23.88	7.69	28.66
Dummy 1998	14.68	19.55	25.02	7.75	28.34
Dummy 1999	14.80	19.75	25.30	7.75	29.71
Dummy 2000	15.00	20.04	25.40	8.09	30.09
Dummy 2001	14.91	20.04	25.55	7.74	30.15
Dummy 2002	14.95	20.10	25.38	7.86	30.31
Constant Terms	-8.27	-4.63	-2.77 **	.86	.28
R Square-Overall	.22	.14	.00	.00	.01
N	131	131	131	131	131

* p<=.05 ** p<=.01 *** p<=.001

APPENDIX F: Summary of Fixed-Effects Analyses of Private Giving to Public Comprehensive Colleges and Universities 1994-2003

	Total Private Giving		Alumni/ae Giving		Nonalumni /ae Individual Giving		Corporate Giving		Foundation Giving	
Alumni/ae of Record (log)	.09	**	.11	*	.05		.07		.15	
Expenditure per FTE (log)	.60	***	.52	***	.71	***	.55	***	.88	*
Total Revenue per FTE (log)	.14		.25		.08		-.04		.21	
Endowment per FTE (log)	.08	*	.08		.06		.10		.08	
% Alumni/ae Solicited	.23		-.19		-.22		.21		3.35	**
Matching Funds Programs	-.03		-.09		-.28		.16		.31	
State Approp. per FTE (log)	.34	**	.13		.41		.40		.01	
Tax Approp. for Higher Ed/$1000 of Personal Income	.04		.16	**	-.06		-.01		-.19	
Lottery Scholarship	.05		-.54	*	.42		.06		.73	
State Financial Aid per Student	.78		-.34		.06		.83		-4.32	
Citizen Ideology	.00		.00		.01		.00		.03	
Gross State Product Per Capita (in thousands)	.05	*	.01		.03		.07		-.01	
Dummy 1996	-.16		.08		-.63		.44		-.68	
Dummy 1997	-.23		.29		-.81		.46		-.95	
Dummy 1998	-.21		.34		-.80		.41		-1.25	
Dummy 1999	-.27		.38		-.82		.37		-.96	
Dummy 2000	-.28		.48		-.68		.20		-.73	
Dummy 2001	-.31		.46		-.78		.24		-.29	
Dummy 2002	-.30		.52		-.87		.36		-.38	
Constant Terms	1.19	***	1.24	**	1.24	**	.81		2.13	*
R Square-Overall	.00		.02		.00		.01		.03	
N	675		675		675		675		675	

* p<=.05 ** p<=.01 *** p<=.001

APPENDIX G: Summary of Fixed-Effects Analyses of Private Giving to Public Doctoral I Universities 1994-2003

	Total Private Giving	Alumni/ae Giving	Nonalumni /ae Individual Giving	Corporate Giving	Foundation Giving
Alumni/ae of Record (log)	.57	.18	.95	.60	-.67
Expenditure per FTE (log)	.41	.39	-.26	1.13	-.88
Total Revenue per FTE (log)	-.23	-.60	.41	-.49	.30
Endowment per FTE (log)	-.01	-.01	.03	-.07	.00
% Alumni/ae Solicited	-.34	.75	-.72	.39	-2.23
Matching Funds Programs	.17	.41	-.26	.23	1.03 *
State Approp. per FTE (log)	.17	.59	-.15	.24	-.15
Tax Approp. for Higher Ed/$1000 of Personal Income	.08	.18	.19	.07	.13
Lottery Scholarship	-.13	.42	-.54	-.69	.11
State Financial Aid per Student	-.10	-1.84	-1.52	1.32	1.08
Citizen Ideology	.01	.02	.01	.00	.05
Gross State Product Per Capita (in thousands)	.03	.03	.10	-.01	.06
Dummy 1996	2.40	5.25	-1.12	-3.66	32.00
Dummy 1997	3.30	6.79	-1.24	-4.10	32.90
Dummy 1998	3.66	7.35	-1.26	-4.04	33.22
Dummy 1999	3.71	7.51	-1.57	-4.00	33.04
Dummy 2000	3.78	7.61	-1.70	-3.88	33.25
Dummy 2001	4.01	8.01	-1.50	-3.71	33.46
Dummy 2002	3.76	7.92	-1.62	-4.05	33.32
Constant Terms	.50	-1.73 *	-.12	4.14 *	-10.08
R Square-Overall	.13	.07	.03	.02	.00
N	123	123	123	123	123

* p<=.05 ** p<=.01 *** p<=.001

APPENDIX H: Summary of Fixed-Effects Analyses of Private Giving to Public Doctoral II Universities 1994-2003

	Total Private Giving		Alumni/ae Giving	Nonalumni /ae Individual Giving	Corporate Giving		Foundation Giving
Alumni/ae of Record (log)	.27		.19	.22	.26		.36
Expenditure per FTE (log)	-.03		-.09	-.02	-.09		.02
Total Revenue per FTE (log)	.14		-.54	-.39	-.28		.60
Endowment per FTE (log)	-.01		-.04	.01	-.01		.01
% Alumni/ae Solicited	-.21		-.77	.42	-.91		-.38
Matching Funds Programs	.12		-.10	.43	-.31		.25
State Approp. per FTE (log)	-.06		-.69	-.09	-.97		-.48
Tax Approp. for Higher Ed/$1000 of Personal Income	.06		.19	.00	-.13		.10
Lottery Scholarship	.22		.46	.19	.48		.33
State Financial Aid per Student	.03		-.59	-1.06	-1.38		-.11
Citizen Ideology	-.01		-.01	.01	.01	**	-.03
Gross State Product Per Capita (in thousands)	.09		-.04	.11	.22		.08
Dummy 1996	11.08		111.20	8.04	13.28		7.73
Dummy 1997	12.65		111.71	10.20	16.79		9.26
Dummy 1998	13.06		112.36	11.05	18.14		9.65
Dummy 1999	12.92		112.32	10.67	18.22		9.77
Dummy 2000	12.90		112.55	10.24	18.53		10.02
Dummy 2001	12.70		112.55	10.29	18.45		9.75
Dummy 2002	12.94		112.64	10.61	18.54		9.97
Constant Terms	-2.99	*	-87.01	1.50	-1.37	**	-2.92
R Square-Overall	.07		.02	.00	.02		.02
N	119		119	119	119		119

* p<=.05 ** p<=.01 *** p<=.00

APPENDIX H: Summary of Fixed-Effects Analyses of Private Giving to Public Baccalaureate I&II Colleges 1994-2003

	Total Private Giving	Alumni/ae Giving	Nonalumni/ae Individual Giving	Corporate Giving	Foundation Giving
Alumni/ae of Record (log)	-.42	.14	-.62	-.55	-2.06***
Expenditure per FTE (log)	-.04	-.20	.03	-.03	-.64
Total Revenue per FTE (log)	.47	-.23	.50	.68	4.41
Endowment per FTE (log)	-.56	-.08	-.46	-.44	-.19
% Alumni/ae Solicited	-3.09	3.02	-4.55	-5.05	-10.00
Matching Funds Programs	.11	-.29	.54	-.89	-1.08
State Approp. per FTE (log)	-.50	.07	-.11	-1.02	-.55
Tax Approp. for Higher Ed/$1000 of Personal Income	-.32	.09	-.22	.28	-2.09*
Lottery Scholarship	.34	1.36**	.58	1.63	1.53
State Financial Aid per Student	2.89	1.21	3.83	1.27	-1.92
Citizen Ideology	.00	-.02	.04	-.03	-.05
Gross State Product per Capita (in thousands)	.18	-.14	.49	.04	-.24
Dummy 1996	12.46	11.80**	32.50	16.03	21.06
Dummy 1997	16.00	16.25**	32.90	20.17	25.60
Dummy 1998	16.69	17.61**	32.01	21.44	26.06
Dummy 1999	16.94	18.70**	31.61	22.00	25.15
Dummy 2000	16.58	19.19**	30.42	22.09	26.04
Dummy 2001	16.54	19.61**	30.75	21.91	25.05
Dummy 2002	16.85	19.27**	31.40	22.22	25.11
Constant Term	.48	.29	-33.17	-1.22	5.26
R Square-Overall	19%	7%	6%	9%	0%
N	72	72	72	72	72

* p<=.05 ** p<=.01 *** p<=.001

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