The Relationship between Private Giving and State Funding among Maryland's Four-Year Public Institutions

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Dedication

This research is dedicated to my family. My wife, Beth, having successfully navigated the doctorate gauntlet a decade ago, knew the secrets to keep me on track. She also kept the family functional while I was absorbed in my studies. For my son, Sam, and daughter, Rebecca, they were amazingly patient through most of this journey. They were extremely delighted when I successfully defended this work. Now it is time to catch up with family.

To my Dad and Mom, they embraced this journey, although Mom did not make it to this finale. I remember quite vividly our last conversation. I shared the news that I had commitments from my dissertation committee members along with a manageable proposal. She seemed very content to hear the news. Later that night Mom passed away from this world. Dad, the chief caretaker for so long, enabled me to move ahead with my studies, knowing that he was overseeing Mom's care. Through this journey and with this support, my learning process and personal growth became possible and more meaningful. I am indebted to the family more than they know.

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Lifelong learning at its best involves the commitment of many people. I am appreciative to many others, and I share their excitement in the journey.

Abstract

The Relationship between Private Giving and State Funding
among Maryland's Four-Year Public Institutions

This study examined the relationship between and among the changes in the level of institutional fundraising and changes in state funding at Maryland public four-year institutions. As institutions have become more engaged in fundraising, the impact of private giving success on changes in state funding becomes more apparent in the context of increased fiscal constraint, and as a mechanism to help ensure institutional competitiveness. Anecdotal theory and attitudinal surveys indicated that public funding reductions were considered when private giving increased.

Using thirteen cases based on ten years of data from thirteen institutions, descriptive statistics, correlation and regression testing results were analyzed using data from several state and national databases. Private giving, state funding, wealth indicators (including the endowment expenditure ratio and the state pseudo endowment), and ranking indicators, comprised the types of variables tested. Several statistically significant correlations were found, including a moderate, positive correlation between Total Private Giving and State Funding per FTE Student. Simple regression testing indicated a portion of State Funding per FTE Student could be explained by Total Private Giving. This research interpolated that virtually no change was predicted in State Funding per FTE Student per dollar Change in Total Private Giving.

Other correlations included statistical significance between private giving variables and several ranking indicators. Many of these indicators were also correlated with state funding. The findings revealed no statistically significant evidence that private giving was used to supplant state funds. Hidden reductions in state funding increases

may have occurred, although this research was unable to extract such findings from the analysis. There was an indication that state funding did not keep pace with inflation.

Based on the findings, an operational model was developed to assist institutional advancement and government relations efforts to maximize funding. The model introduced the pseudo endowment, a fiscal resource variable enabling comparisons between public and private institutions and their assets supporting operations. Discussion of supplanting theory was also raised as an outcome of this model and the underlying research.

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Chapter I

INTRODUCTION

The purpose of this study was to examine the relationship between and among the changes in the level of institutional fundraising and changes in state funding at Maryland public four-year institutions. Higher education funding has become increasingly problematic within the public sector particularly (Zumeta, 2001). College leaders benefit by understanding the relationship between increases in private giving, changes in state appropriations, and how to position the institution cybernetically to maximize both sources of revenue (Birnbaum, 1988). There was a lack of empirical research on the relationship of the change in actual fundraising revenues at public institutions and the change in state funding levels in the next fiscal year. Anecdotal and attitudinal studies suggested that fundraising success may affect state funding, yet there was an absence of quantitative research of the financial data to indicate if such relationships exist (Johnstone, 1993; Ruppert, 1996). Using perspectives from public choice theory, bounded rationality theory, the correlation of endowment size and institutional quality rankings, and the cost of excellence study, a quantitative study of Maryland four-year public institutions over a 10-year period was undertaken (Ostrom & Ostrom, 1971; Simon, 1976; Swensen, 2000; Michael, 2005). This research analyzed the change in private giving in terms of the institutional endowment and treatment of state funding as a *pseudo endowment* and included a review of Bowen's (1980) revenue theory. This chapter describes the dissertation, its purpose, the problem of practice, the literature gap, an overview of the theory, and the methodology to be used.

Context of the Study

The introduction to fundraising and state support requires recognition that state funding of higher education has become increasingly more restrained, requiring tuition and other funding sources to provide a proportionately greater percentage of public institutions' overall financing (Mumper, 2001). State and local appropriations per student have declined by 4% in current dollars over the past two decades (College Board, 2007). Further, the long term trend is declining state support of higher education, with higher education becoming viewed more as a private benefit (Kirwin, 2006). State officials establish funding priorities between public higher education and competing programs, including K-12 education, public safety, medical assistance, and transportation. With the pressures of balancing state budgets along with the knowledge that colleges and universities have other sources of funding, governors and legislators perceive higher education as being able to avoid short-term disasters when funding is reduced (Ruppert, 1996). In fact, colleges' efforts to raise funds through private giving may negatively impact state support (Johnstone, 1993; Ruppert, 1996; Ruppert, 2001). As Chapter Two indicates, there is primary evidence to demonstrate that such a phenomenon has occurred in primary and secondary education (Office of Management and Budget [OMB], 2006). The implication is that there is likely a relationship between increases in private giving and changes in public funding of higher education. This chapter will clarify the purpose of this research, the problems of practice, the research questions, the significance of this study, and provide a literature review and clarification of the gap in the knowledge that relates to fundraising and state support of four-year public institutions.

Purpose of the Study

The purpose of this study was to examine the relationship between the change in the level of institutional fundraising and changes in state funding at Maryland public four-year institutions. As state institutions have been increasingly more engaged in fundraising, the question of the impact of private giving success on changes in state funding became more apparent, in the context of increased fiscal constraint and as a mechanism to help ensure institutional competitiveness.

Problem of Practice

Public college administrators recognize the dynamics involved in fiscal decisions when state policy makers act (Birnbaum, 1988). Tightening budgets, exacerbated by "the increasing competition for state funds between higher education and other state functions, such as health care, criminal justice, and elementary and secondary education" has exacerbated financial tensions (Nettles & Cole, 2001, p. 198). Higher education is particularly vulnerable as a part of state budgets (Zumeta, 2001). Such fiscal policy choices impact college operations and capital investment. Over the past two decades, public universities, particularly the state flagship institutions, have transitioned from state-supported to state-assisted (Cash, 2001). According to Cash (2001), the growth in private giving to these institutions paralleled significant reductions in state funding.

Nevertheless, the long term presence of state funding remained. The treatment of state funding as pseudo endowment spending can be used to recognize the level of private endowment that would be necessary to provide comparable funding to supplant state funding. State funding converted to pseudo endowed spending contextualized the relationship and levels of support between the state support and private giving. The

pseudo endowment measure provided an indication of the wealth capacity generated through state funding of an institution. Another indicator for calibrating private giving productivity for comparison to state support and among other institutions was the endowment expenditure ratio (EER) (Schneider, 2006). This ratio provided an indicator of endowment size to total expenditures. The EER was presented as the percentage of endowment market value to institutional operating funds. This was an additional wealth indicator used to relate financial resources to institutional performance indicators. Increasing state funding becomes a means to build the pseudo endowment while increasing private giving increases the EER. Both indicators can be compared with institutional performance data to demonstrate trends and the affects of funding decisions.

The funding of higher education has become increasingly problematic within the public sector particularly with being viewed "as uniquely able to mitigate the effects of budget cuts by tapping other sources of revenue such as tuition increases, grants, and private donation" (Zumeta, 2001, p. 158). Further, college leaders would benefit by understanding the relationship between increases in private giving, changes in state appropriations, and how to position the institution cybernetically to maximize both sources of revenue (Birnbaum, 1988).

The problem of practice was more complex in that it included the rise of private donation incentive programs that have acted to encourage institutions to fundraise (Association of Governing Boards [AGB], 2008). While legislation enabling such programs have stipulated that the incentive match may not substitute for other funding that would have been received, there was little indication of the long-term consequences of such incentive programs on operating and capital funding (Education Article, § 17,

2008). Moreover, the relationship of such an incentive program on the rate of change of the state operating funding within a given year was not known. In addition, there has also been operating grants provided through the state, yet not included in the state's standard operating funding, for specific purposes that are included in the general operating funds, such as the Historical Black Colleges and Universities Enhancement Funds, Information Technology Investments Funds, and Access and Success Funding (Maryland Higher Education Commission [MHEC], 2008).

Problem of Research

There was a lack of empirical research on the relationship of the change in actual fundraising revenues at public institutions and the change in state funding levels in the next fiscal year. The existing research was of attitudinal surveys of state elected officials and anecdotal descriptions and commentary (Johnstone, 1993; Ruppert, 1996; Ruppert, 2001). The theme in earlier research indicated that "increased nongovernmental revenues, e.g., from tuition fees or private giving, may be met with a commensurate withdrawal of taxpayer-originated funds" (Johnstone, 1993, p. 10). Further, a higher education issues survey of state legislative education committee chairs in 49 states found that 68% responded that "a significant factor in determining how much money the legislature will appropriate . . . is the ability of colleges and universities to raise their own funds through tuition, research grants, and gifts" (Ruppert, 1996, p. 9). Anecdotal and attitudinal studies suggested that fundraising successes may affect state funding, yet there was an absence of quantitative research of the financial data to indicate if such funding relationships existed.

Research Questions

In this study, there are six research questions designed to address the research purpose.

RQ1. What are the funding trends by institution of the past 10 years in terms of private giving, total state funding (operating and capital funding), endowment, and the state pseudo endowment level?

RQ2. What are the enrollment trends by institution of the past 10 years relative to the funding trends in RQ1 (private giving, total state funding, endowment, and the state pseudo endowment level)?

RQ3. Are there statistically significant relationships among total private giving, per capita state personal income, and institutional enrollment, and the total state general operating funding per FTE student?

RQ4. Are changes in total private giving significant predictors of changes in state capital and operating funding to the Maryland public four-year institution?

RQ5. Are total private giving, institutional wealth, and SAT scores statistically significant predictors of state funding?

RQ6. Are previous year state funding, the number of private gifts, and research expenditures statistically significant predictors of the pseudo endowment necessary to support state funding?

Significance of Study

The research study and questions tested for relationships between fundraising and changes in state funding in a single state, Maryland. Definitions of terms are contained in this chapter. The state budget process is explained in more detail in Chapter Two. The

results of this study provided the baseline for a model to enable an institution to respond to a relationship, or lack of relationship, between fundraising and state funding. The model was intended to position the institution strategically in terms of expanding its funding base while ensuring sustainable state funding. State funding was also presented in terms of pseudo endowment spending to aid in contextualizing the relationship to private giving. Furthermore, this research tested the anecdotally acknowledged and attitudinally recognized findings with actual financial data over a 10-year period, a test that was not evident in the literature (Johnstone, 1993; Ruppert, 1996; Ruppert, 2001). Institution leaders will be able to examine the findings of this research and consider strategies to strengthen their case for state funding along with increased private giving.

Further, this research developed the pseudo endowment as a new variable intended to bridge the gap between public and private institutions when comparing the assets supporting the funding of institutions. As the literature review indicated, there have been limitations in analyzing the relationships between endowments and ranking indicators among all classifications of institutions (Swensen, 2000). The pseudo endowment was designed to demonstrate the level of assets necessary to support operating funding to a university using a comparable spending level as that of a private endowment. Equating pseudo endowment with private endowment enables a smoother comparison and analysis of data across traditional public and private institutional boundaries.

Finally, an additional significant aspect of this study was the implication of state incentive programs. Maryland instituted the Private Donation Incentive Program that leveraged private donations with state incentive funding (Education Article, § 17, 2008).

While this research controlled for the incentive program, the annual reporting and funding required of the program raised the awareness level among institutional leaders and state policy makers. Such incentive programs may work to institutionalize development within the administrative infrastructure which may generate sustained and substantial private giving over time. Because several states offered such incentive programs, this is an ideal focus for future research beyond the scope of this study.

Delimitations of the Study

There are delimitations in this study to narrow the scope through the data and variables selected (Creswell, 2003). Specifically, the single-state selection, the 10-year time frame, institutional mission, Council for Advancement and Support of Education (CASE) Voluntary Support of Education survey database, the National Association of College and University Business Officers' (NACUBO) Endowment Study database, the Grapevine Survey of Higher Education Appropriations, the Integrated Postsecondary Education System (IPEDS) database, and the calculated ratio measures from these data acted as delimiters. A purposeful decision to study only Maryland public four-year institutions was made to control for state policies affecting higher education funding. The 10-year, retrospective time frame from Fiscal Year (FY) 1997 through FY2006 incorporated changes in accounting standards that effect comparability of financial data. The Governmental Accounting Standards Board (GASB) pronouncements during this time frame have included significant changes in financial reporting, including capital assets, depreciation, and post-employment benefits (GASB, 1999). Mission was captured generically in terms of institution type based on Carnegie classification. The self reported databases of financial, enrollment, and fundraising information captured institutions

operating under one coordinating board, strengthening internal validity because similar data was collected from the institutions by a single organization (Cohen, Cohen, West, & Aiken, 2003).

Limitations of the Study

The limitations clarify potential weaknesses in the proposed study design. There were limitations of this study in utilizing a nonexperimental design with nonrandom sampling (Hinkle, Wiersma, Jurs, 2003). The purposeful sampling decreased generalizability. Without randomization, the research must systematically eliminate all plausible rival predictors to establish causality (Light, Singer, & Willett, 1990). This research made a determination to control for multiple governing agencies and higher education boards by focusing on a broad range of university classifications within a single state. Due to this limitation, the research was limited to determination of correlation and predictability where one variable was related to another. This became the foundation for further investigation of statistical relationships. A preliminary analysis of 10 years of database entries for the 13 institutions indicated that there were gaps in the data. Access to audited financials and Internal Revenue Service (IRS) Form 990s helped fill the data gaps.

The Maryland economy tended to exhibit a more stable fiscal capacity to support higher education. Maryland appeared to have not experienced the prolonged economic downturns and economic cycles that several other states have such a Michigan and Texas. In an economic environment where revenues decline and take longer to recover, a similar study may show very different findings.

Finally, this research made use of several state and national databases, including the Voluntary Support of Education Survey and the Grapevine Survey. The data was self-reported with limited verification and may contain inaccurate information. Furthermore, although this research collected data for ten years, some data was missing or unavailable. The research did attempt to fill data gaps, on a limited basis, using primary sources of financial information.

Definition of Terms

This research utilized terminology that may be unfamiliar to the reader.

Deferred gift is made by bequest, or through a life-income arrangement with the institution's access deferred until the death of donor (Worth, 2002). This is often considered planned giving.

Endowment represents "funds invested for the long term, with principal remaining intact and only income being available for expenditure" (Worth, 2002, p. 400-401). The endowment, often managed through an institutional foundation, represents a doorway to autonomy with few public policies to contain or constrain the usage. Donors typically restrict endowment funds (American Institute of Certified Public Accountants [AICPA], 2002).

Endowment expenditure ratio is the measure of the endowment size divided by the total institutional expenditures (Schneider, 2006). The ratio can be used as a performance indicator for comparison of the wealth capacity and private giving productivity. The EER is presented as the percentage of endowment market value to institutional operating funds. The EER never exceeded 100% for any institution during this period, meaning the endowment was less than the total operating budget.

Expenditures generally refer to the costs incurred for instruction, research, public service, academic support, student services, institutional support, scholarships and fellowships, and operations and maintenance of facilities (Council for Aid to Education [CAE], 2007). Auxiliary enterprises, hospital services and other independent operations are not included in this research's use of the term expenditure.

Foundation is a private tax-exempt entity that has been created for charitable purposes. A foundation related to a university or college may be considered a component unit of that institution (CAE, 2007).

Fundraising and private giving, considered synonymous, involve the efforts and outcomes of soliciting gifts for the institution (Worth, 2002).

Indicators represent ratio measures, percentages, or other quantitative values that allow an institution to measure and compare its position in key strategic areas to peers, past performance, or previously established goals (Taylor & Massy, 1996). For example, the endowment expenditure ratio (EER) is a broad based measure designed to demonstrate the ability of an endowment to support and sustain the operations of an institution, accounting for private giving that is permanently endowed (Schneider, 2006).

Restricted gift is donor restricted as to how funds are expended (CAE, 2007).

State pseudo endowment, or pseudo endowment, is a ratio which simulates an unrestricted endowment necessary to support an equivalent spending level equal to state funding. If, for example, an average endowment spending rate of five percent is assumed and the institution receives $25 million in state funding, the pseudo endowment ratio would be calculated by dividing the $25 million by the five percent spending level. The quotient, or endowment size, would equal $500 million. The pseudo endowment, in this

example $500 million, would be necessary to produce the equivalent level of funding that the state provides. The pseudo endowment ratio represents a wealth measure of the institution encapsulating the state assets necessary to produce the state operating funding. The pseudo endowment recognizes the on-going presence of state funding, although subject to annual funding gyrations and, in many states, an overall reduction over time. This variable can be used in comparison with other institutions, both public and private. Please note, during the analyses the data variables were labeled as state pseudo endowment. For the purpose of discussion, pseudo endowment will refer to the state pseudo endowment.

Unrestricted gift is given by a donor without restrictions and may be utilized at the direction of the institution (CAE, 2007).

Overview of Dissertation

Chapter I

This dissertation is comprised of five chapters. Chapter I provided a description of the dissertation and its purpose, to examine the relationship between the change in the level of institutional fundraising and changes in state funding at Maryland public four-year institutions. The chapter introduced the problem of practice, the literature gap, and an overview of the theory and methodology to be used.

Chapter II

Chapter II is the literature review. This review will lead the reader through the deductive approach in developing the research questions. Beginning with the broad issue of the budget process for funding Maryland higher education and the relationship of fundraising and state funding of public universities, this chapter then reviewed the

historical perspective of fundraising. The literature of practice and descriptive reports examined Johnstone's (1993) thesis on public funding of higher education and Ruppert's survey research (1996 and 2001) on the attitudes of state legislators toward higher education. This work established the foundation for framing the research questions in the relationship between that change in private giving and state funding within the context of Light's (2005) *Four Pillars of High Performance.* The pillars, alertness, agility, adaptability, and alignment, provide a context to examine the robust organization, whether a university or a state legislature, in terms of positioning for survival and prosperity in uncertain time (Light, 2005). Light's work guided the review of literature pertaining to this research. Specifically, as the theoretical and organizational contexts were examined, the relationship of endowments to education quality ranking through Swensen's (2000) correlation of endowment size and institutional quality, and Michael's (2005) cost of excellence study were critiqued. Endowments were often an outcome of private giving and have generated sustainable sources of revenue for public institutions. The research included review of institutional endowments as a mechanism for integrating private giving and utilized the endowment expenditure ratio for comparison purposes (Schneider, 2006). This chapter included the theoretical context of public decision making and the rationale for fundraising (Buchanan & Bullock, 1962; Ostrom & Ostrom, 1971; Thurow, 1987, & Simon, 1976). Other factors affecting the relationship between state funding and fundraising were integrated in this review prior to a conclusion and discussion about the gap in literature.

Chapter III

Chapter III is the methodology section. The framework for this research design was based on approaching the problem of research and research questions from the perspective of a higher education leader using inductive and deductive inquiry (Creswell, 2003). From a methods perspective, this study was quantitative, analyzing fundraising, operational and capital financial data, retrospectively, over 10 years. The research controlled for legislative initiatives that directly affected fundraising, such as public funding private contribution match programs that may affect the relationship being analyzed. The study examined fundraising outcomes of Maryland's public four-year institutions (see Appendix A) and how this related to changes in state funding of operations and capital projects, revenue sources, expenditures, and fund reserves in the succeeding year. The unit of analysis was the institution. The data was coded into SPSS for analysis. The paradigm of inquiry was from the postpositivist perspective with intent to produce objective and understandable findings (Creswell, 2003). Based on the scientific method of empirical knowledge, this paradigm helped with attempting to substantiate anecdotal and attitudinal findings within one state. The theoretical framework for this proposed study used Light's (2005) pillars of high performance. Studying the relationship between private fundraising and state funding within this framework enabled the literature review, research method, and data analysis to be undertaken in terms of positioning the institution to maximize funding from both sources in an effort to remain competitive.

Chapter IV

Chapter IV contains the results of quantitative testing and interpretation of those results. The findings are presented for each question followed by a summary.

Chapter V

Chapter V provides discussion and interpretation of the findings along with recommendations used to create a base model for addressing private giving and state funding issues within the higher education institution. The implications of further studies are presented.

Chapter II

LITERATURE REVIEW

Purpose of the Study

The purpose of this study was to examine the relationship between and among the change in the level of institutional fundraising and change in state funding at Maryland public four-year institutions. As state institutions have become increasingly more engaged in fundraising, the question of the impact of private giving success on changes in state funding is more apparent in the context of increased fiscal constraint and as a mechanism to help ensure institutional competitiveness. Further, state-sponsored, temporary private giving incentive programs have been used to stimulate and leverage giving, yet there was no indication of the effects of such programs on the rate of change and long-term affects of state funding of higher education (AGB, 2008). This chapter will address the literature review, including the financial role of the state in higher education, the history of fundraising, the rationale for private giving at public institutions, endowments, the theoretical context of public decision making on state support of higher education, fundraising rationale and endowments, an introduction to the framework used in addressing this subject and generating research questions, and other factors, to be followed by a conclusion concerning the gap in the literature.

Financial Role of the State in Support of Higher Education

This section provides an overview of the financial role of the state in support of higher education and in relationship to other sources of funds. Before fundraising effects are considered, it is useful to recognize the generic state budget process, specific processes and mechanisms relating to Maryland support of higher education, and broader

strategic planning and budgeting aspects. Funding, both in terms of the budget process and the mechanism, or method, for funding, becomes the policy decisions that affect higher education operations (Jones, 2003). Public universities receive their funding from a combination of state support, tuition and fees, private giving, sales and services, and investment income including earnings from endowments (Dogramaci, 1993; Mumper, 2001). There is a clear relationship between the change in state support and the inverse change in tuition charges at most state institutions (Mumper, 2001).

Institutions have multiple revenue streams, including tuition and fees, government appropriations, contracts, grants, and research, gifts, endowment support, and auxiliary support (Hollowell, Middaugh, & Sibolski, 2006). Generally, gifts are restricted, "designated for general endowment, scholarship endowment, capital construction, or some other specific-use category. . . . The interest earned during a fiscal year from the general endowment is unrestricted and may be used for general operations" (Hollowell, Middaugh, & Sibolski, 2006, p. 46).

The State Budget Process for Supporting Higher Education

Higher education funding is one aspect of a state's budget prioritization. State government performs a central, often dominant role in American higher education, financing higher education through several mechanisms, including direct subsidy of colleges and universities (McGuinness, 2005; Heller, 2006). In outlining the relationship between state funding and private giving, a basic understanding of the budgetary process and the competition for state funds among a myriad of functions is useful. States are constrained to balance budgets during periods of revenue growth and decline, setting priorities and balancing needs among multiple public interests. Revenues depend on the

capacity of the tax system and the economic activity within a state (Mumper, 2001). Policy makers may implement unsustainable spending increases or tax cuts and, conversely, when revenues decrease, a state may become overdrawn and must undertake cost-reductions and cost-shifting (Dothan & Thompson, 2007). Such deficient state budget practices can exacerbate university funding problems, subjecting institutions to broad fluctuations year-to-year. State financial support of colleges and universities are often viewed as a viable option to reduce costs to avoid short-term financial disasters (Mumper, 2001).

A trend in state funding of higher education has indicated that increases in other budget needs have partially crowded out funding of higher education (Kane, Orszag, & Gunter, 2003). Specifically, research on state budgets has found a strong negative link between higher education funding and Medicaid funding, with substantial increases in Medicaid leading to the inability of higher education funding to rise significantly during good economic times (Kane, Orszag, & Gunter, 2003). This trend is projected to continue as costs associated with health care continue to outpace inflation (Kane, et al, 2003).

The growth of other revenue sources in support of higher education funding may reduce demand for growth from single sources of revenue, such as tuition or state funding, reduce revenue volatility, and support a sustainable growth in revenue (Dothan & Thompson, 2007; Jones, 2003). The increase of private giving and support of endowments provides an alternative to the zero-sum relationship between increasing state funding or increasing tuition, although it is unclear if a zero-sum relationship exists between private giving and state support (Thurow, 1981; Mumper, 2001; Johnstone, 1993). Moreover, by providing non-arbitrary, long-term funding strategies, state policy

makers and other stakeholders develop a more sustainable budget model that supports higher education (Dothan & Thompson, 2007).

States have a substantial interest in high levels of college participation among high school graduates and life-long learners, high rates of degree completion, and supplying an economy with a high proportion of college graduates (Levy, 2007; Jones, 2003). The investment in higher education is seen as creating both public and private benefits. Public funding stimulates individual incentives for additional education which fosters increased earnings potential and the benefits of economic growth and stability (Grubb & Lazerson, 2004). This interest supports the notion of higher education as a public good which will be discussed later in this chapter (Ostrom & Ostrom, 1971). Discussion of the role of higher education as a *public good* or a *private good* has framed much of the debate over state funding (Herber, 1983). The public and private benefits of higher education are influenced by many factors, including public policies, funding, and private action (Grubb & Lazerson, 2004). Along with the state interest in creating more successful students, fiscal constraints have given rise to capacity limitations, a re-evaluation of state priorities, and an increased demand for accountability (Levy, 2007; Zusman, 2005). The processes through which states fund higher education involve policy decisions of the executive and legislative branches of government which are affected by the policies and views of the public, institutional leaders, students, and the federal government, as graphically illustrated in Figure 1 below (Jones, 2003). State financing policy has shifted from an emphasis on institutional viability with the focus on increasing and maintaining institutional capacity, to targeted funding policies (Jones). Such polices are designed to utilize existing capacity to achieve state purposes, maximizing existing

capacity more strategically with available resources (Jones). The use of *italicized words* in this discussion corresponds to points in the flow diagram in Figure 1 on the next page.

As Figure 1 portrays, the flow of funds in higher education is driven by the *economy*. The *economy* generates personal and corporate income that serves as a basis for *tax revenues* generated from incomes, earnings, sales, and property. *Income* represents the source of tuition revenues from students and their parents or guardians. *Tax revenues* filter into the deliberative process when *local and state government* policy makers establish funding levels. As executive and legislative officials contemplate funding levels for *higher education*, there are also other functions of government such as elementary and secondary education *(K-12), corrections, health care, and other government* support that must be contemplated. Within the realm of higher education, particularly at the state level, *appropriations* are typically made directly to colleges and universities to support operations through base institutional funding or special purpose funding to promote utilization of capacity in ways designed to achieve public priorities (Jones, 2003). States primarily fund higher education through direct subsidy, or *grant*, to the institution, functioning as overseer of the public interest and provider of higher education (McGuiness, 2005).

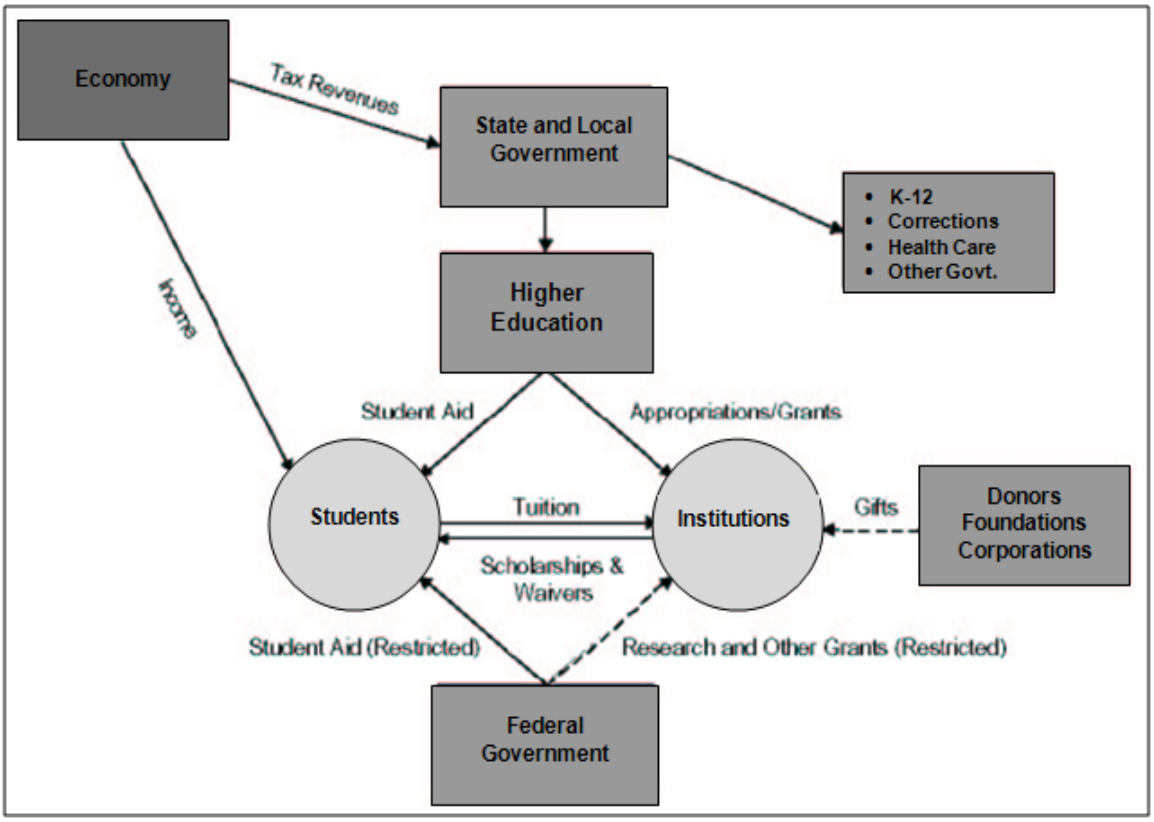


Figure 1. Flow of Public Funds in Higher Education[1].

Note. Figure 1 from "Financing In Sync: Aligning Fiscal Policy with State Objectives," by D. Jones, 2003, Policies in Sync: Appropriations, Tuition, and Financial Aid for Higher Education, p. 7. Copyright 2003 by the Western Interstate Commission for Higher Education.

The resource allocation process among the states for budgeting of higher education has been primarily comprised of *base-plus funding* or *formula-based funding* (Jones, 2003). *Base-plus funding* takes the previous year's state allocation and adjusts it for inflation or other parameters. This funding is incremental in approach with the deliberative process of budgeting focused more on the net change rather than the entire allocation with a tendency for funding to become disjointed year-to-year when state financial resources are particularly constrained (Lindblom, 1959). *Formula-based*

funding is built on a combination of costs and workload measures, such as credit hours or enrollment (Jones).

The base-plus funding and formula-based funding correspond to Layzell and Lyddon's (1990) findings that the only predictors of current state higher education appropriations were past appropriations (cited in Toutkoushian & Hollis, 1998). Further research supported this, indicating that enrollments and previous appropriation levels were the only determinants of current state appropriations (Hossler, 1997).

The support of capital programs for investment in the expansion and renovation of facilities are treated separately, outside of the *Flow of Public Funds* in Figure 1. However, it is worth noting that capital funding can involve pay-as-you-go (PAYGO) financing that is contained in the state operating budget. Moreover, while many institutional fundraising campaigns involve capital projects, major funding through a state is often dictated by fiscal capacity, borrowing limits, and program priorities (Herber, 1983; Mumper, 2001).

Once state support of higher education operations is determined, it filters to the institution in two principle forms, *appropriations* to the *institution*, typically through a state higher education agency, and *student aid* directly to *students* (Jones, 2003). At the institutional level, the successful fundraising revenues flow to the institution and endowments as gifts. The gifts, particularly those that are endowed, generally go to the institutional foundation, a component of the college or university. This illustrates the position of the institution in terms of state *appropriations*, private *gifts*, *foundation* support, and establishing *tuition* levels and tuition discounts through *scholarships* and *waivers*. The institution's size, a reflection of the total budget, would be affected by the

flows of funds from all sources. As this literature review indicates, several scenarios may become evident at this point in the revenue flow, including a substitution effect utilizing a zero-sum approach where private contributions may supplant state funds, or a public choice theoretical approach with fundraising success slowing increases in public funding, yet not supplanting those public dollars (Thurow, 1987; Grubb & Lazerson, 2004; Buchanan & Tullock, 1967; Ostrom, 1975). The role of the *federal government* is included in Figure 1 to demonstrate the *restricted research* and *grant* funds that may contribute to institutional operations along with the federal government's role in supporting students through *student aid* (Jones, 2003). This figure provided a broad overview of the financial resources that come together through the state along with the forms of direct state support of higher education to the institution and through the student.

Maryland State Budget Process

In Maryland specifically, the budget process begins with a spending target set by the Spending Affordability Committee (SAC), a group of leading legislators and prominent citizens, codified in state law (State Government Article, 2008). The Committee's purpose is to limit growth in State spending to a level sustainable by the rate of growth of the State's economy. The committee recommends to the governor and legislative committee the fiscal goals of the state government budget. These goals include levels of state spending, new debt authorization, and state personnel, and how any surplus may be used. The governor is not bound by the SAC recommendation and may set a higher target based on his administration's analysis. Maryland does have a unique feature

in that the legislature is restricted to deleting or reducing items from the governor's budget, giving the governor an exceptionally strong position in the budgeting process.

Interestingly, Maryland espoused statutory higher education funding guidelines that included a generic goal that "barring unforeseen economic conditions, the Governor shall include in the annual budget submission . . . an amount of General Fund State support for higher education equal to or greater than the amount appropriated in the prior year" (Education Article, § 11-105(i)(5)(ii), 2008). The statute went on to set specific percentages of the state general fund and capital support to be allocated to higher education during the period of Fiscal Year (FY) 2000 through FY2004 (Education Article, § 11-105, 2008). This public policy intent is important to recognize while analyzing the research data; however, the data indicated that state higher education funding has fallen below the earlier intended legislative goals (Maryland Department of Legislative Services [MDLS], 2007). Given the changes in state funding of higher education and the espoused policy of the legislation, sharing the rationale of decision making by policymakers as Ruppert's (1996, 2001) attitudinal survey attempted, may not be particularly useful (College Board, 2007; MDLS, 2007). At the same time, even with legislative intent espoused in law, this has not assured these funding levels were attained and there has been no indication that fundraising may affect the outcome of state funding decisions.

Maryland Higher Education Commission Funding Guidelines

The Maryland Higher Education Commission (MHEC) implemented a peer-based model for funding guidelines of University System of Maryland (USM) institutions in 1999. Morgan State University and St. Mary's College of Maryland are funded under

other agreements with the state, although all the institutions participate in the peer-based model (MHEC Division of Finance Policy, 2003). The model provides the budget process a funding standard and a basis for comparison between institutions.

Specifically, each institution selected a minimum of five peer institutions similar to the Maryland institutions in mission, size, programs, enrollment, and other characteristics. MHEC had to approve the institution's selection. The financials of these institutions were analyzed to determine the financial resources available per FTE student. The espoused goal of the model called for funding Maryland's institutions at the 75th percentile of their funding peer institutions. MHEC then calculates funding guidelines for each institution based on multiplying funding per FTE at the 75th percentile, with an adjustment for inflation, by the projected enrollment and subtracting the Maryland institutions' projected unrestricted tuition and fee revenue (MHEC Division of Finance Policy, 2003).

MHEC, along with the Maryland Department of Budget and Management, the Department of Legislative Services, the University System of Maryland, and Morgan State University refined the funding guidelines methodology. Several key performance indicators to assess the institution have been included in the guidelines to measure performance (MHEC Division of Finance, 2003).

Private Giving Within the State Budget Process

The confluence of where state funding and private giving meet for the institution is critical in understanding the questions of this research and how public funding decisions are couched within this flow chart, given the framework of this research focused on Light's (2005) *Four Pillars of High Performance*. Maximizing funding in

terms of state support and private giving enable the public institution leader to strive for attainment of the robust university. The financial resources available effect the options of leaders in terms of the velocity of change and the vector of change (2005). The institutional leadership decision-making will be influenced through funding by short and long-term implementation options in terms of the velocity of change. At the same time considerations of processes and organizational changes to the institutions and the leadership's and entire campus community's role in determining those vectors for change will be influenced by the level of resources available (Light, 2005). There is recognition that maximizing funding without examining more efficient or productive institutions does not ensure attainment of the robust organization. The institutional leadership that relates state funding and private giving while addressing the cost-quality relationship and accountability issues, may position the institution more favorably, challenging the prevailing wisdom that universities do not have a bottom line so efficiency gains and productivity constantly seem elusive (Light, 2005; Zemsky, 2008).

While this research seeks understanding of the relationship between changes in fundraising and state funding, private giving needs to be considered during the deliberative state funding process in order to provide continued public financial resources and avoid tendencies to supplant or reduce the growth in public funding (Johnstone, 1993; Ruppert, 1996). Even with legislative protections in place to encourage fundraising and guard against supplanting, intuitively there are no controls on the reduction of increases in higher education funding from the state, or long-term effects after the legislation expires (Education Article, § 17 Subtitle 3, 2008).

The greater attraction of institutions for growing endowments, particularly by public institutions, is reflective of the change in their revenue composition. Public colleges and universities are becoming more *state-assisted* rather than *state-supported* as the funding levels and composition changes (Hearn, 2006). The change has been driven in part due to a revolt against taxes and increasing interest in privatization (Kerr, 2001). The trend suggests a further transition in the future to *state-tolerated* institutions (Cash, 2001).

Verifying that private donation incentive matches are not supplanting public operating funding at the institutional level can be tested. However, attempting to ensure such state match programs designed to encourage fundraising do not affect the rate of change in institutional operating funding is more challenging. There is potential for subtle supplanting to occur during the budget process when funding levels are proposed, but increases in funding may be reduced to a smaller amount as a result of successful fundraising. When the change in total funding is tracked, the research may indicate an increase. The details could reveal that a larger increase was considered but policy makers chose to reduce the total growth in funding. This reduction during deliberations, while producing an overall increase in funding, could mask subtle supplanting of state funds with private giving. As Figure 1 indicates, the deliberations process takes place among policy makers, yet there is little indication that the relationship between fundraising and state support over both the short and the long terms, and within the context of reducing the size of increases, has been examined (Johnstone, 1993; Jones, 2003). This tension between increased funds from private fundraising and viewing these funds as an

alternative revenue source to supplant state funding may generate added consideration to future funding commitments by a state government (Johnstone, 1993; Ruppert, 1996).

Strategic Planning and Budgeting

Understanding the state budget process serves as a foundation for institutional strategic planning and budgeting. This theoretical concept within the context of this research integrates planning and budgeting as it relates to university's budget building process. This provides a basis for the institution to harden itself to address the future and ensure prosperity as a robust organization (Light, 2005). Further, this provides the opportunity to integrate endowment and private giving into the institutional planning. This discussion is purposefully placed here, following the discussion of the state budget process and prior to the discussion on endowments and quality, the cost of excellence, and the theoretical contexts of public decision making, as an opportunity to integrate the literature discussion in terms of the planning and budgeting that will ultimately determine the relationship of private giving to state funding.

Needs-based versus *resource-based* decision making and decision processes are major components of this concept. Strategic planning and budgeting is applied through the identification of adequate funding sources, which will remain a major challenge due to financial pressures and shifts in the funding of higher education (Johnstone, 2005). As a result, all segments of higher education continue to face considerable and continuing conflicts over resources (Kerr, 2001). Strategic planning and budgeting integrates private giving with changing economic conditions, planning for shrinking resources, and supporting communications (Israel & Kihl, 2005).

It is useful to understand that budgets generally serve three functions – control, management, and planning (Hou, 2006). The planning function facilitates decision making on the objectives and policies which would include higher education funding in the context of all other demands for funding. Lowrie (1915) indicated that in the context of the budgetary reform, the "proper function of the budget is . . . the presentation and adoption of a plan in fiscal affairs which will insure (sic) the most judicial use of the resources of the state for the purposes most desired by the citizens of the state" (Hou, 2006, p. 731).

Contemporary financing of higher education requires institutions to embrace the diversification of revenues (Breneman, 1997; Clark, 2001). As tuition continues to displace public funding, the Carnegie Commission on Higher Education (1972) suggested a reasonable general rule is that students bear the burden on one-third of the education and general costs of college. This decline in public funding along with resistance to tuition increases and the inability of such increases to cover all rising institutional costs has stimulated the search for additional and diverse funding sources (Babbidge & Rosenzweig, 1962). Endowment and private investment capital function similarly providing the financial foundation for long-term solvency and investment income that can also be used to support current operations (Ruch, 2001).

Strategic planning and budgeting may substantiate a model for expectations about specific relationships with benchmark levels of private giving and endowment size as it relates to state funding changes (Fisman & Hubbard, 2002). Such a model could use an indicator of optimum size endowment and state funding support as it relates to operations. This would involve reverse engineering an endowment expenditure ratio

(EER) to determine the optimum endowment size based on the total operating budget and comparable EER for similar institutions. This supports the research question of the relationship between the EER and state funding. This also supports the precautionary savings theory of endowment, in which institutions with more volatile cash flows accumulate larger endowments, and large institutions and institutions with access to debt have lower endowment levels (Fisman & Hubbard, 2002). The revenue structure measures the diversity of funding sources and the volatility of income streams. Generally, an institution that derives its revenue from several independent sources enjoys greater flexibility and stability. This reflects the diversity of sources from which it receives charitable gifts. Building on aspects of operations management and the use of data for decisions concerning business process and strategy would be useful (Krajewski & Ritzman, 1999). Strategic planning and budgeting theory is in need of refinement as it pertains to gauging the implications of increased fundraising and endowment growth and changes in state funding.

The literature recognizes implications in the relationship between the level of private giving and changes in state funding (Johnstone, 1993; Ruppert, 1996). How the state regards fundraising prowess among universities may be based on a triad of indicators, including the endowment expenditure ratio and the state support as demonstrated by a pseudo endowment which form indicators of wealth, and quality as accounted for through benchmarked performance indicators among institutions. While the issue of *quality* will be discussed later in terms of studies relating endowment to quality, there is no standardized definition among the institutions. MHEC collects annual performance statistics to serve as benchmark indicators, but this data has not been tested

in terms of support for determining *quality*. The implication is that the performance indicators in combination with the wealth variables, the endowment expenditure ratio and the equivalent state pseudo endowment, may be useful in driving funding decisions (MHEC Division of Finance, 2003; Schneider, 2006). The funding decisions of the state and particularly the relationship between increases in private giving and increases in state funding, may become important influences on education quality.

Public funding of four year institutions was captured through state support of primarily public institutions (National Center for Education Statistics [NCES], 2002). While the trend for such support has been reduction and a shift away from unrestricted state funding, the long-term trend has been the continued presence of a resource for higher education operations. The encouragement of private giving, endowment growth, and continued state support needs to be viewed in the context of changes to state funding of college operations and capital investment.

Private giving is an institutionalized function in support of alumni, institutional advancement, and foundation development (Worth, 2002). The institution can emphasize particular aspects of private giving in an effort to enhance unrestricted giving and giving that would support operations. Such fundraising would have a direct effect on the relationship between endowment and operating budget and would form a relationship with the endowment expenditure ratio, justifying the research question that incorporates this ratio.

Historical Perspective of Fundraising and Endowments

Understanding the state budget process gives rise to the need to understand the historical context of private giving and state funding changes and the prominence of the

endowment over time. “A major recurring theme in the history of higher education in the U.S. is the ongoing search for sufficient resources to enable institutions to fulfill their mission and achieve their ever-expanding aspirations” (Hossler, 2004, p. 145). Revenue complexity expanded during the industrial revolution and throughout most of the twentieth century as research, auxiliary enterprises and athletics grew and provided additional funding sources (Hearn, 2006). The historical discussion is divided into five time frames based on Cohen’s (1998) framework for studying the history of higher education.

Early European History

The privately contributed endowment in support of higher education dates back to 1180 and an endowed college at the University of Paris (Haskins, 1957). The college was an endowed hospice, or residence hall, designed to secure board and lodging for poor scholars (Haskins). The introduction and use of endowment moved westward, continuing from the continent of Europe to England. Redcliffe-Maud stated:

> In 1249, a certain William of Durham [Archbishop-elect of Rouen] had a very good idea – and died. The idea, enshrined in his will, was that 320 marks should be given out of his estate to house ten Masters of Arts who wished to study together residentially in Oxford in order to sit at the feet of the dons. They were to study theology and they were to be needy. (p. 373)

Colonial Era

The British introduced private giving and the endowment concept to America. During the Colonial Era, gifts and bequeathed funds provided Harvard and eight other colonial colleges with “the life giving flow of private philanthropy” (Curti & Nash, 1965, p. 23). In one case, by October 1701, the Colonial Connecticut General Assembly approved the charter for the Collegiate School, which was to become Yale (Rudolph,

1990). The financial resources were provided through land grants, construction grants, lottery revenue, and duties on rum (Swensen, 2000). In 1792, in exchange for public financial support, Connecticut officials were placed on the Yale board (Swensen, 2000). The funding restrictions and board membership composition led to chronic frustration and conflict. This became an early indication that where institutions lack independent financial means, external fund providers, such as the state, can alter the character of the institution (Swensen). By 1871, the public support ended and Yale became independent with alumni support replacing much of the state funding (Swensen). Elihu Yale contributed to the Collegiate School goods worth £562 along with 417 books and a portrait of King George I in 1718 (Thelin, 2004; Steiner, 1893). In exchange for the endowed contribution, the institution was renamed (Cohen, 1998).

In addition to funding from governing bodies, private giving was tied to religion, which benefited colleges tremendously. This combination of funding sources created the state-church colleges, such as Harvard, William and Mary, and Yale (Cohen, 1998). Furthermore, college officials learned to achieve flexible interpretations of wills and bequests to benefit the institution (Thelin, 2004). The early colleges were also dependent upon tuition. Samuel Johnson wrote in 1754 at the opening of King's College, which later became Columbia, "the charge of tuition is established by the trustees to be 25 shillings for each quarter [with another source of income endowed scholarships for] poor but able youth" (in Thelin, 2004, p. 18). During this era, the colleges were not well endowed, spending all that was raised, and "living in genteel poverty" (Cohen, 1998, p. 47).

The Emergent Nation

Moving from the Revolutionary War through the Civil War during the period 1790 to 1869, the private institutions and newly formed state colleges continued the funding patterns of the Colonial Era with little money available (Cohen, 1998). Colleges depended upon private contributions for most of their revenue. Princeton undertook a fundraising campaign in the 1830s with a top donation of $5,000 (1998). Fundraising efforts took various forms including in-kind gifts such as produce. The need to generate financial resources to cover operational costs became apparent. States also began to support institutions, including through the donation of land (1998).

The development and alumni office is rooted in this era. Professors received very low salaries, and on occasion, "a college would close for a year to allow the faculty to go out and raise money or it would defer payments until . . . it had the funds (Cohen, 1998, p. 90). Recent graduates were often encouraged to teach classes for room and board (Cohen). The faculty became a major producer of development funds while recent alumni provided in-kind services.

The colleges were aware of the need to keep tuitions low to enable enrollment to grow and provide a public service in the teaching of the young (Thelin, 2004). This rationale meant that other funds were necessary to sustain the institution. The number of colleges expanded by nearly 800 between 1776 and 1861 (Rudolph, 1990). As the country moved into the Industrial Revolution Era, the notion of *public* and *private* colleges began to grow (Cohen). Privately endowed independent colleges began to realize "they could no longer feed at the public trough and had, in one sense, indeed become private" (Cohen, 1998, p. 185). As the Civil War ended and the Industrial Revolution was

well underway, individual giving for endowed purposes began to grow substantially (Curti & Nash, 1965). In addition, public institutions benefited from the Morrill Land Grant Act of 1862 by establishing and building endowments based on sales of public lands (Thelin, 2004).

University Transformation and Industrialization

During this period, the expansion of institutions slowed to less than 200 new institutions from 1861 to 1900 (Rudolph, 1990). A transformation in philanthropy for higher education was underway as industrialization and religion blended through the Protestant work ethic. Thelin discloses:

> For a growing number of prosperous Americans, hard work and good works came to be seen as necessary partners. Colleges benefited from the world-view of wealthy entrepreneurs who acknowledged their obligation to be stewards of important educational endeavors. This was the margin of wealth that enabled some colleges to get started with excellent facilities. (p. 101)

Philanthropy was recognized as essential in the development of private institutions. Presidents solicited unrestricted contributions along with special purpose funds, such as for buildings or scholarships (Cohen, 1998). The golden age of philanthropy was underway by the 1890s when some colleges were receiving contributions of $1 million or more (1998). Large scale giving proceeded into the twentieth century, especially from the philanthropic foundations begun by Carnegie, Rockefeller, and Ford (Brubacher & Rudy, 1997). Corporate entities also desired to make similar contributions. Endowment management was changing from being relatively straightforward and uncomplicated for much of the early history of American higher education to one of much greater sophistication (Massy, 1990). The more sophisticated colleges and universities established solicitation systems to seek funds from business

people and developing alumni network. Organized campaigns were established to generate contributions.

'The systematic fundraising efforts proved salutary as institutions became less dependent on single fortunes and . . . universities were spreading out their sources of funds" (Cohen, 1998, p. 161). Development efforts were focused on attracting contributions to support the institution's operations (Cohen). The need for diversifying sources of revenue had become apparent, yet there was little awareness at this time of the inter-relatedness of revenue sources as changes occurred.

It was during the mid-1800s onward, that "public higher education became grounded in the philanthropic environment" (Cash, 2001, p. 22). The prosperity continued into the 1920s, which added to the gifts from private donors and foundations, primarily to private institutions. Gifts to the general institutional endowment continued, stimulated in part by the General Education Board establishing a standard of endowment of $250 per student (Cohen, 1998, p. 162). Even the public institutions benefited in this era. Public higher education saw its base as the citizens of the state while being an economic engine of the community. As the population grew and the local tax base expanded, additional public funds became available to public universities in the twentieth century (Cash, 2001). State legislatures began committing funds regularly in support of enrollment growth (Cohen, 1998). The notion that colleges and universities were responsibilities of the state became more widely accepted. "Major private institutions were able to build sizable endowments as their . . . fundraising [generated] income greater than their annual expenditures" (Cohen, 1998, p. 162). Many institutions were able to pay a greater share of operating costs through endowment funds. The growth in

athletics was also seen as a fundraising bonanza, with success in athletics generating more private giving.

During the Great Depression, endowments and foundations suffered from the overall economic conditions. Cohen stated:

> However, higher education overall suffered less in the 1930s than did many other social institutions because the facilities it had built when funds were readily available in the 1920s were still in place, and its labor-intense character meant that teaching assistants and post-doctoral fellows could be employed for very little money to replace higher-cost professor. . . Higher education's leaders were learning to be ever more nimble and creative in their pursuit of an essential commodity. (pp. 164-166)

Massification of Higher Education

The massification of higher education period of 1945 to 1975 saw private institutions at the beginning of the period derive one-third of their current fund income from tuition (Cohen, 1998). The public institutions generated 12% from tuition (Cohen, 1998). The GI Bill and subsequent expansion of public universities increased higher education funding. The Cold War and expansion of federal research funds, coupled with increased state funding levels, supported upwards to 80% of operating budgets for major public research universities (Cash, 2001). "By 1974, the proportion of income derived from tuition had dropped to 27% in the private institutions but had remained steady at 12% in the public sector (NCES in Cohen, 1998, p. 250).

Private giving increased by tenfold during this period (Cohen, 1998). Driven in part by favorable changes in the tax laws along with increasingly more sophisticated marketing tools, the most growth occurred in corporate giving (1998). The endowment became a much more prominent source of funding for private institutional operations.

Contemporary Era

The contemporary era, from 1976 to the present, includes the era of public fiscal restraint. Private and corporate giving could not replace reductions in state funding (Cohen, 1998). Private giving saw the shift from unrestricted to restricted giving. Such a shift to private giving with restrictions limited the college's and university's discretion upon where to spend these contributions and related endowment proceeds. According to Durkee (2008), the vice president of Princeton University, universities are shaped by the interest and restrictions of donors (Arenson, 2008). Athletics fundraising became a substantial source of private giving for public institutions (Cash, 2001). Contemporary American higher education has produced much change in private giving and the relationship of the endowment to college and university operations. In the early 1990s, "endowments represent[ed] approximately 20% of the wealth of lower and mid-priced private institutions and 36% of the higher priced private institutions" (Taylor, Meyerson, & Massy, 1993, p. 32). Public institutions often had little or no endowment (1993). This trend changed with a greater emphasis in private giving at public institutions and the growth of endowments at public institutions.

The change in public support of higher education during this era has increased fiscal restraint. College and universities addressed the reduction of unrestricted public support and attempted to develop other sources of revenue. By the fall of 2000, tuition, fees, and public funding accounted for almost one-half of all public, four-year revenues while auxiliary enterprises, hospitals, and non-degree activities accounted for a quarter of all revenues (Knapp, Kelly, Whitmore, Wu, Gallego, & Broyles, 2002). In four-year, private institutions, tuition and fees accounted for about one-fourth of all revenues in

2000 (Knapp, et al., 2002). From 1975 to 2002 tuition rose 710% at private universities and colleges and 615 % at public institutions (NCES, 2002, Table 312). For context, inflation as measured by the consumer price index rose 236% during the same period (NCES, 2002). Price increases in tuition have dramatically exceeded growth in family income over the last two decades (Zumeta, 2000). From the historical context, the shifting of revenue sources gives rise to the research questions in this dissertation and the purpose to examine the relationship between the change in the level of institutional fundraising and changes in state funding at Maryland public four-year institutions.

Rationale for Private Giving at the Public University

With an understanding of the historical development of higher education fundraising, the rationale for public institutions seeking private contributions may be driven in part by a need to build endowments, harden non-public revenues, such as the spending provided annually to support operations and scholarships from endowments, and the relationship between endowment size and institutional quality ranking as universities seek expanded reputation and prestige (Brewer, Gates, & Goldman, 2006). Some consider increased private giving not an outcome but rather an input that may only be indirectly related to education quality improvement (Brewer, Gates, & Goldman, 2006). Key studies find the correlation of endowment size and institutional quality and financial resources effect quality education (Michael, 2005; Swensen, 2000). This recognizes the need to expand revenue sources while ensuring one source does not supplant another in pursuit of quality.

Correlation of Endowment Size and Institutional Quality Ranking

The relationship between private giving and public funding, particularly in terms of full-time equivalent (FTE) students, is paramount in terms of providing maximum financial resources to support the robust, quality organization. Swensen's (2000) seminal study correlating endowment to institutional quality ranking is fundamental to this research. The rationale for Swenson's study was weighted in an understanding that "a significant level of endowment support for university operations enhances institutional autonomy . . . [and increases] institutional attractiveness . . . and the means to create a superior teaching and research environment" (Swensen, 2000, p. 8). In fact, the Carnegie Commission (1972) stated that a higher level of expenditures for students is likely to be associated with a higher quality of education. Swensen's (2000) study integrated a nationally recognized, although questionable, methodology for ranking institutions with endowment size. The study attempted to identify the relationship for which many anecdotal statements have been made relating endowment to quality of education. Quality is distinguished in terms of reputation and resources of an institution (Pascarella, 2001). This is part of "a renewed focus on rankings and other indicators of institutional quality" (Hossler, 2004, p. 150). This research proposal recognizes the lack of a standardized definition for *quality* regarding an institution. Also, establishing and testing such a definition is beyond the scope of this research, although Light's (2005) *Four Pillars of High Performance* will serve as the framework of this study and a basis for achieving quality.

Limitation of Quality Measures

Swensen (2000) recognized that public universities fall outside the study. State-supported institutions face significantly different budgetary issues than private institutions. Public universities face investment and spending challenges that are fundamentally different from private institutions. Swensen contention was to dismiss the public institutions. Unfortunately, treating state funding in terms of a pseudo endowment was not considered in attempting to extend Swensen's research beyond private institutions. The heavy endowments were the drivers of quality factors within the *US News and World Report* ranking methodology. Nevertheless, as the role of private giving in public institutions expands and fiscal constraint of public funds remains an issue, there are aspects from Swensen's research to be learned and considered in the current research.

Intuitively, if endowment size were correlated to institutional quality, then rising state funding as public institutions increase private giving would also appear to have a positive effect on quality. If Swensen (2000) could have factored state funding in terms of a pseudo endowment then the determination of quality ranking may not have been as clear using the methodology chosen. The proposed study will test for a relationship between fundraising per student FTE and state support of higher education per student FTE. Based on Swenson's findings, a correlation in the proposed research questions may not indicate enhanced educational quality, but this may serve as a basis for pursuing increased private giving and state funding that may improve education quality rankings.

Swenson's (2000) purpose was to examine the relationship between endowment size and institutional quality, as represented through the *US News* rankings, for which a strong correlation was found. The problem of practice was based on the widely held

belief of such a relationship. The research on this topic tended to be light, driven in part from the lack of consensus for defining institutional quality in a standardized manner across many types of institutions (Morse & Flanigan, 2007). Bowen (1980) indicated that "one of the most lamentable blind spots in the study of higher education is the lack of reliable information on the relationship between the educational expenditures of colleges and universities and their educational results" (p. 152). Bowen (1980) went on to conclude that "increases in affluence do not automatically result in improvements in performance. . . . They do suggest that on average, but with many exceptions, money does make a difference" (p. 167).

Swensen (2000) infers that quality in his study is ranked through *US News and World Reports* assessment of "academic reputation, student retention, faculty resources, admissions selectivity, financial wherewithal, graduation rates, and alumni giving support; combining measures such as SAT scores, class size, and graduation rates, the publication fashions a ranking scheme of colleges and universities" (p. 19). Ranking is an external instrument for a wide audience with a market orientation (Federkeil, 2007). The methodology features "comparison and hierarchization of institutions by numeric indicators (with) no analysis of processes" (Federkeil, 2007, p. 11). The rankings tend to overlook causes of deficits or weaknesses generating poor performance (Federkeil, 2007). The rankings attempt to deal with the issue of how to have accountability without comparability. Comparability among the data may serve a purpose for potential students choosing an institution and may aid in the public decisions affecting funding of institutions. Nevertheless, the recent Cooperative Institutional Research Program (CIRP) Freshman Survey indicated that the importance of college rankings in national magazines

has grown from 10% among the freshman surveyed in 1995 to over 16% in 2006 (Higher Education Research Institute, 2007, April). There is use in the ability to gauge one institution against another, particularly among the public colleges and universities.

A major concern remains that the *US News & World Report* methodology does not accurately reflect institutional quality. Swensen (2000) acknowledged the issue. Many higher education leaders consistently call these rankings into question (Hoover, 2007). Swensen divided 31 Carnegie Foundation Research Universities, Private Institutions I, into quartiles based on five-year average rankings by *US News and World Reports*, as included in Table 1. The conceptual framework uses a standardized indicator in the comparison with endowments.

Grouping by Rankings

Incorporating measures such as class size, SAT scores, and graduation rates produce this questionable ranking methodology. "Colleges get a lot of their status from things that have very little to do with the fundamental purposes of higher education" (Gerald & Haycock, 2006, p. 21). There is a need for a different metrics for assessing quality (Gerald & Haycock, 2006). Nevertheless, Swensen's (2000) research question, while not clearly stated in his writing, seeks to clarify the relationship of endowment size and *US News and World Report* ranking among private research universities. The *US News* ranking is considered the standard among published college rankings (Ehrenberg, 2002). The Carnegie classification is used to distinguish among institutions according to "mission, clustering institutions with similar programs and purposes" (Swensen, 2000, p. 18).

Table 1.

Endowment Size Correlates Strongly with Institutional Quality

Quartile	Institution	Average endowment size ($ million)	Endowment per student	Average age of institution
Top 3	Harvard Princeton Yale	$7,200	$502,000	304
First	Cal Tech Duke Harvard MIT Princeton Stanford Yale	$4,460	$305,000	226
Second	Brown Chicago Columbia Johns Hopkins Northwestern Pennsylvania	$1,950	$130,000	164
Third	Carnegie Mellon Emory Georgetown Rochester Tufts Vanderbilt Washington	$1,540	$102,000	140
Fourth	Boston University Case Western Howard New York Southern Cal Miami Yeshiva	$690	$54,000	133
Average		$2,360	$219,603	167

Note: From Pioneering Portfolio Management: An unconventional approach to institutional investment. New York: The Free Press, p. 20.

The quantitative research method groups the universities into quartiles according to institutional ranking. Investment income and quality are compared within each quartile. The investment income represents the funding generated from the endowment's earnings that are spent on the institution's operations. Swenson does indicate that the focus of institutions within the "quartiles deemphasizes the rank order of institutions and reduces the impact of the inevitable errors made when attempting to make . . . [a]

comparison" (Swensen, 2000, p. 19). This grouping does make the study more likely to be replicated by others. The average endowment size declines precipitously from the top three institutions with an average endowment of $7.2 billion to the bottom quartile with an average of $690 million (Swensen, 2000). Moreover, top quartile institutions support annual operations with an average draw of $187 million, relative to bottom-quartile schools, which receive an average of only $33 million (Swensen, 2000). The same phenomenon exists in the levels of endowment per student. Top quartile universities had $305,000 in endowment assets for each full-time equivalent (FTE) student as compared to only $54,000 per student for bottom quartile schools (Swensen, 2000). Moving among the quartiles, there is a clear pattern that emerges in endowment size (Swenson, 2000). If the reader accepts the methodology, the general conclusion serves as a springboard for assessing the impact of endowment size and the outcome of private giving in higher education.

However, the entire design of Swensen's (2000) work is limiting due to the purposeful sample, which limits the generalizability of the findings (Creswell, 2003). Public institutions are defined as falling outside the scope of the study (Swensen). While this may have relevance, a similar study among public institutions could relate endowment and fundraising to quality. The growth in development operations by public institution makes fundraising outcomes more prominent in supporting a quality educational experience.

Table 2

Endowment Income Provides More Support for Higher Quality Institutions

Quartile	Institution	Average Total Return ($ million)	Student Income	Grants/ Contracts	Contributions	Investment Income	All Other
Top 3	Harvard Princeton Yale	$1,020	18%	27%	6%	25%	25%
First	Cal Tech Duke Harvard MIT Princeton Stanford Yale	$1,110	15%	36%	6%	17%	27%
Second	Brown Chicago Columbia Johns Hopkins Northwestern Pennsylvania	$1,260	17%	29%	6%	7%	41%
Third	Carnegie Mellon Emory Georgetown Rochester Tufts Vanderbilt Washington	$793	17%	19%	6%	7%	52%
Fourth	Boston University Case Western Howard New York Southern Cal Miami Yeshiva	$774	31%	27%	4%	4%	33%
Average		$985	19%	29%	5%	10%	39%

Note: From *Pioneering portfolio management: An unconventional approach to institutional investment*. New York: The Free Press, p. 20.

When the income sources are reviewed from among the 31 institutions grouped by quartiles, as contained in Table 2, one can see the portion from investments along with tuition and other sources. The *all other* category includes auxiliary enterprises, hospitals,

and clinical services (Swensen, 2000). The strength and size of investment income support of research institutions' operating budgets varies. The top institutions have average support of 17% of operating revenues, the bottom quartile institutions receive far less at 4% of the operating budget revenue (Swensen, 2000). With higher quality institutions being larger in this sampling, there is a greater level of investment income that declines as one moves down the quartiles. Swensen (2000) implies at the margin, endowment income provides the means for faculty, administration, and trustees to develop an unusually strong educational institution. Significant financial resources provide higher education leaders with the ability to attract the best scholars by offering the most competitive compensation arrangements or state-of-the-art facilities (Swensen, 2000). Financial resources essentially create a margin of excellence that separates the elite institutions from the pack (Swensen, 2000). Successful private giving provides additional resources and may ensure the margin of excellence in academic, research, faculty and staff support, and facilities (Leslie, 1983).

Swensen's (2000) analysis indicates the direction of causality remains unclear. Does support follow reputation in a self-perpetuating cycle? Alternatively, does endowment growth provide the resources necessary to achieve excellence, particularly if state funding may be limited? Institutional quality and competitiveness are dependent upon a consistent, ever-increasing stream of revenue to fund the pursuit of excellence (Bowen, 1980). The purposes and goals of endowment management are to preserve the purchasing power of assets and provide substantial flows of financial resources to the operating budget (Swensen, 2000).

Limitations of Finding

The study by Swensen is useful although there are limitations. The clear indication is that endowment becomes the driver of quality. Endowment is weighted heavily within the *US News and World Reports* ranking methodology. Further, there is a tension between providing for the future, preserving the purchasing power of assets, and simultaneously meeting the demands of the present by providing resources to the operating budget that is not clearly recognized in the study. Recognizing such goals, which can be relatively clear, and easily measured and evaluated, would have been useful to incorporate into this analysis. Given the methodology employed and purposeful sampling issue previously discussed, Swensen (2000) recognizes the importance of applying an analytically rigorous framework to financial decisions. Decisions must be made in the context of the specific characteristics and circumstances of the institution, including its philosophy, mission, and culture. Swensen does provide an indication that the endowed reserves do allow trustees to be less tolerant of government requirements connected with public funds. Furthermore, the endowments enable the institution to smooth the impact of financial issues, buffering operations against such forces (Swensen). This finding aligns well with Light's (2005) robust organization. For smaller institutions without the established endowment, this can be an indication of survivability (Swensen).

Given the methodology and sampling employed, Swensen (2000) recognized the importance of applying an analytically rigorous framework to financial decisions. "If public authorities wish to support institutions at a particular level, changes in levels of endowment income might be offset by altering levels of state support for the university"

(Swensen, 2000, p. 18). This comment is extremely similar to that of Johnstone's (1993) that as institutions secured increased nongovernmental revenues this action may be met with a corresponding reduction of public funds. Swenson's work did not address this aspect in terms of fundraising, instead choosing to acknowledge the fundamental differences between institutions in terms of investment and spending problems, supporting the need for additional research to close the knowledge gap.

Other Issues Challenging Swensen's Study

Similar research using both the *US News*' rankings and the *Times of London*'s Higher Education Supplement Rankings of U.S. universities further demonstrated a weakness of the *US News* rankings with public institutions (Barteau, 2008). Barteau (2008) found that in plotting aspirational institutions, in his specific case analyzing the University of Delaware by the rankings by each publication, among the institutions that become "signposts on the path to prominence," there were concerns expressed that the *US News* methodology is biased against public institutions (Barteau, 2008, slide 22). The *Times* contains 25 public institutions in the U.S. in their top 200 (Times of London, 2007). Such bias may be more associated in the underlying quality scores rather than the ordinal ranks. Nevertheless, the bias may be somewhat self-perpetuating in that the CIRP Freshman Survey of students indicated that for "fewer students at public institutions and more students at private and non-sectarian institutions that rankings were a very important factor in their choice" (HERI, 2007, p. 2). The 2006 CIRP Survey indicated that 42.6% of respondents in selective private schools indicated that rankings were very important while 16.9% of respondents in selective public schools indicated such a response (HERI, 2007). Given the literature reviewed, it may be premature to declare the

bias in the *US News* methodology; however, Barteau's comments do add weight to concern about Swensen's sampling where public institutions fall outside the study due to state funding support factors.

Relevance of Study

Swensen's (2000) research focused on quality of an institution expressed through a series of indicators that comprise a ranking. An assumption in Swensen's (2000) work was that ranking equates to *quality*. The lack of an attempt to develop generally acceptable definition of *quality* weakens Swensen's (2000) findings. Within higher education, there is a spectrum of possible definitions of quality. Astin (1985) viewed excellence in collegiate quality as those institutions "that have the greatest impact, add the most value as economists would say, on the student's knowledge and personal development and on the faculty member's scholarly and pedagogical ability and productivity" (Bogue & Hall, 2003, p. 9). A more limited definition was offered by Mayhew, Ford, & Hubbard (1990) stating that quality undergraduate education consists of preparing learners through the use of words, numbers, and abstract concepts to understand, cope with, and positively influence the environment in which they find themselves" (Bogue & Hall, 2003, p. 9).

Recognizing that an ideal measure of education quality would be the value added for a freshman completing her education at an institution, there are limitations. The output is difficult to collect and high ability students choose similar institutions making it difficult to capture unbiased estimates of institution and student value added (Jin & Whalley, 2007). In part, due to this limitation, many measures of education quality focus on college inputs, such as financial resources and alumni giving, and crude out measures,

such as retention and graduation rates. *US News* builds on this by basing its rankings on such measures.

In examining ranking and quality, current research has suggested that rankings are one factor of quality assessment. "The entire process of rating and ranking is built on the philosophic premise . . . that quality is in limited supply. . . .There can never be more than ten in the top ten . . . no matter that the actual performance level of . . . an institution or what impact the . . . institution has on its students" (Bogue & Hall, 2003, p. 52). Further, citing findings from the Pew Higher Education Research Program's *Policy Perspectives*, "in some areas there may be an inverse relationship between cost and quality" (cited in Bogue & Hall, 2003, p. 3). There is an assumption that quality is of limited supply, yet is essential to every institution (Bogue & Hall).

The discussion on quality of education requires "a culture of evidence" (Bogue & Hall, 2003, p. 8). The culture of evidence also permeates Light's (2005) robust organization and pillars of high performance. There is attention to performance, although there is no standardized definition of *quality*, particularly if the discussion is enmeshed with *excellence* of education (Bogue & Hall; Gardner, 1984). While Swensen concludes there is correlation between endowment and quality, "quality is an elusive attribute, not easily submitted to measurement. . . . In an operation sense, quality is someone's subjective assessment, for there is no way of objectively measuring what is in essence an attribute of value" (Carter 1966 as cited in Bogue & Hall, 2003, p. 54). Perhaps one needs to qualify the limitations of having students' college selection influenced by ordinal rank changes rather than examining the underlying continuous quality measures (Pope, 2006).

Current research has suggested *US News'* effort to bring quality information to a wider audience has heightened attention to higher education (Jin & Whalley, 2007). In fact, the argument has been presented that college quality is a public good for college entrants, heightening the legitimacy of the annual reports of ranking (Jin & Whalley, 2007). The media attention can affect the perception of higher education as a public good by increased attention to public policy discussion on the matter (Jin & Whalley, 2007). Based on research of institutions being included in the *US News* rankings, Jin and Whalley (2007) show that inclusion in the rankings increased college spending and state appropriations per student.

An alternative to the quality debate could be establishing predictive relationships with performance (Light, 2005). Using Light's *Four Pillars of High Performance* framework, a more quantitative rationale can be applied to performance indicators with focus on strategy, internal structure, leadership, resources, and incentives. Specifically, graduation rates, retention, student success, and faculty productivity measures could be tied to these predictive relationships to gauge high performance. In effect, this would enable an institution to operationalized quality through performance. High performance could be a useful relationship to track and benchmark as an alternative to measuring quality.

Questions about the meaning of Swensen's (2000) research remain. While a correlation between endowment and quality ranking was found, the reader is left wondering of the value of such a finding, particularly if quality is based on the *US News* ranking. In Maryland, the funding guideline model initiated through MHEC, and subject to periodic review, has acknowledged a level of value in the *US News and World*

Reports' rankings. The Maryland public universities have developed their own current and aspirational peer institutions that are benchmarked for several performance indicators, including SAT scores among freshman, retention rates, graduation rates, and productivity of faculty (MHEC, 2004). Ultimately, the funding for these peer institutions is also compared and used as a guideline in establishing funding levels from the state. Given the factors included in the *US News* methodology, and the compilation of the ranking by quartiles, this becomes core research in linking endowment and education quality. A substantial funding resource is correlated with a principle mission of the institution. While this serves to indicate that the level of financial resources may relate to quality and/or quality may relate to a financial resource, this is a foundation from which to build further research, including this dissertation.

Cost of Excellence Study

A similar study on the financial implications of institutional rankings was undertaken to test if "financial resources play a significant role in how institutions perform on . . . quality variables" (Michael, 2005, p. 371). While the research found that endowment income, a product of private giving, represented only 0.7% of total revenues in public higher education, compared with over 31% at the time for private institutions, state governments provide almost 36% of the operating revenue of public institutions (Michael, 2005). The study found that all the relationships between endowment per student and quality indicators were significant (Michael, 2005). Michael's research supports Light's (2000) findings of the robust organization and the four pillars of high performance. Michael's research aligns well with the research questions of this dissertation, seeking a relationship between the change in fundraising and state funding

per student FTE and the endowment expenditure ratio change and change in state funding. Moreover, Michael's orientation is more on the performance as measures through indicators rather than on quality. Conceptually, as the performance indicators improved, educational quality was thought to improve. Michael's research appeared to be more aligned with Light's *Four Pillar* framework than Swensen. Since quality is considered among the triad of state funding decision variables, as discussed earlier in this chapter, Michael's work provides the conceptual approach for using performance indicators as a gauge for quality.

Ironically, Michael's (2005) study did not make reference to Swenson (2000). Michael's (2005) empirical study focused on the problem of practice of institutions choosing which ranking variables to pursue to achieve a commensurate increase in educational quality. The focus of this design was on the influence of financial resources on institutional ranking (Michael). Existing databases were used from the *Chronicle of Higher Education, US News and World Reports, The Princeton Review*, and *Kiplinger*. The Pearson's correlation coefficient was used to test the relationship between endowment funds and variables associated with the *US News* rankings. Of particular interest was that the "endowment per student reveal[ed] that the absolute size of endowment has lower association with quality and ranking variables. . . . Institutional wealth . . . should not be discussed in absence of student population" (Michael, 2005, p. 378). The conclusion indicated "state administrators should be aware that how they fund public institutions have bearing on the kind of quality variables institutions pursue" (Michael, 2005, p. 381). Building upon the knowledge base to understand the relationship

between fundraising and state funding will aid college leaders in strategically planning to raise funds while maintaining state support.

Revenue Theory

Swensen's (2000) and Michael's (2005) theories link funding to education quality which becomes a basis for all the research questions presented in this essay. Bowen's (1980) revenue theory is a seminal piece that espoused that college and university affluence may be correlated with educational quality and, along with the often cited statement in higher education finance, "that on the average, but with many exceptions, money does make a difference." (Bowen, 1980, p. 167) Bowen's revenue theory of costs posits that an institution's cost per student is determined by the revenue streams available to it for educational purposes. The availability of revenue determines supply of services rather than the services provided determining cost. A perception is that leaders continually seek expansion of funding using such a revenue theory of cost. The desire for new revenue enables the pursuit of excellence, prestige, and influence (Bowen, 1980). Institutions will raise and spend all the money they can (Bowen, 1980) and state legislators may internalize such a theory when deliberating on higher education funding. If such theory were applicable, this would support a positive relationship between increases in fundraising and state funding.

A more broad view of Bowen's interpretation of higher education financing demonstrates a "fundamental fiscal problem of higher education, colleges and universities face a trajectory of costs" (Johnstone, 2003, p. 5). Such cost phenomena is exacerbated by being a labor-intensive, productivity-resistant operations with a demand for increased technology, increased merit aid to attracted better academically-qualified

students to attractive, modern facilities (Johnstone, 2003). New revenues in Bowen's (1980) context could sustain Johnstone's (2003) natural cost trajectory that would exceed the rate of inflation.

Bowen's (1980) theory stemmed in part from concerns that the definition of institutional autonomy be based on "the absence upon a single or narrow base of support (Babbidge & Rosenzweig, 1962). The theory used laws of higher education costs indicating that the predominant goals of colleges and universities include educational excellence, prestige, and influence or transformation (Bowen, 1980). The proposed research questions are grounded in these laws. The pursuit of excellence, prestige, and influence, can entail unlimited resources for seemingly fruitful educational ends (Bowen, 1980). Finally, the laws of higher education costs indicate that the cumulative effect of laws is ever-increasing expenditures (Bowen, 1980).

While the revenue theory is acknowledged, particularly in light of the rationale for private giving, the maximization of educational quality ranking and prestige often in terms of aspirational institutions, is often defined in terms of resources, including funding (Clotfelter, 1996; Bowen & Breneman, 1993). At the basic level, higher education is a donative-commercial nonprofit organization where tuition acts as the commercial revenue and public appropriations, private gifts, and earnings act as the charitable donations (Hansmann, 1980). While charitable donation may be a misnomer in terms of how current higher education funding is envisioned, the mechanisms of donative wealth affect the demand, production, and outcomes of higher education at the institutional level (Winston, 2001).

"The success of a public university in achieving . . . [its mission] will have an impact on their revenue stream and their ability to garner power, influence, or prestige" (Hossler, 2004, p. 161). Fundraising and state funding are integral components to be viewed and analyzed from this theoretical perspective. Extracting a parallel from the private sector and corporate enterprise where the organization strives to maximize profits, the college or university seeks to "maximize mission attainment" (Zemsky, Wegner, & Massy, 2005, B6). The revenue theory of costs is bound by the rationality of mission attainment at the institutional level. The revenue theory served in the formulation of our research question and may be useful in development of a model to support the outcomes of this research.

Endowment: An Indicator of Institutional Robustness

Based on the literature, there was a need to focus on the private contribution in terms of a standardized unit of measure across institutions and states. This highlights research that did not initially appear as foundational to this dissertation, such as key studies that focus on reinventing the organization, correlating endowment size to institutional quality, and the overall cost of excellence. Before transitioning from the rationale for private giving at a public institution into theoretical constructs that relate to how state policy makers determine funding levels in light of changes in private giving, there was a need to understand endowment as a measure and ratio for comparison among institutions. The literature suggested patterns of private giving affecting endowment size (Swensen, 2000; Michael, 2005). There was no evidence that institutions standardized the quantification of fundraising, endowment size, and state funding into their budgeting process. Institutions were aggressively expanding pursuit of such funding to build

endowments (Hirsch, 1999; Strout 2005). The substantial growth has ended for unrestricted giving (Blumenstyk, 2003). Private giving is associated with restricted endowments for specific fields and aspects of the institutional mission (Hirsch, 1999).

Many educational institutions depend on their endowment spending (Swensen, 2000). "Usually, the difference between *mediocre* and *excellent* is that margin of assured fiscal strength that only an endowment can produce. [Endowments and private giving are the] . . . vital margin of fiscal strength that facilitates institutional excellence" (Swensen, 2000, p. xiii). The discussion of the endowment expenditure ratio (EER) as a measure to gauge endowment's ability to support an institution's operations is a recent development. The EER has the potential for standardized measurement in higher education advancement and budgeting (Schneider, 2006). The EER is a calculation based on the total endowment divided by the operating budget. This casts the endowment in terms of its comparable size to the operations of the institution and is included, as discussed earlier in this chapter, in the triad of variables that may influence state funding decisions for higher education. The EER may be more useful comparatively than a ratio based on the endowment size per full-time equivalent (FTE) student.

The endowment per student FTE generates a competitively higher ratio for those institutions with more research and public service and less instruction. In a comparison where endowments may be of equal size between two universities, the university with more of a research and public service emphasis would have a small divisor, the number of FTE students would be lower in a comparison to other students at a university where instruction is the primary purpose. The EER offers a more holistic approach in examining the entire institutional operations in terms of the budget and using that as the divisor

against the endowment. The EER becomes a broad indicator that demonstrates the total endowment asset in terms of its size to the operating budget. This information is relatively easy to gather to perform the calculation and may serve as a more useful indicator of private giving's ability to be a sustainable source of revenue within the public university. Presently the endowment expenditure ratio discussion focuses almost exclusively on private, not-for-profit institutions (Schneider, 2006). There is little dialogue on public funded institutions. This research used it as a measure in the analysis of financial data.

While the endowment expenditure ratio is a rather new concept there were limitations in comparing the endowment assets to institutional expenditures. There was a timing issue in that the values of endowment assets are generally calculated at year end at the same time annual expenditures are known. The endowment is an asset designed to generate on-going revenues, albeit often restricted. One consideration was to modify the ratio measure to become an Endowment Revenue Ratio. By taking the endowment assets and dividing by the institutional operating revenues there was an indication total endowed assets to total revenues that could be benchmarked among institutions. Moreover, the shift in the ratio away from an endowment comparison to expenditures to that of total revenues shifted the philosophical orientation way from Bowen's orientation of the trajectory of costs, or expenses, to that of the availability of revenues (Bowen, 1980). The orientation was to a resource-based approach, a change from a needs-based approach. This could be a future consideration as the EER receives more critical review.

State Funding as the Product of a Pseudo Endowment

As one considers endowment ratios, there is the ability to apply a similar ratio to state funding. Research can superimpose the state level of funding as the equivalent of endowment spending. Using the annual endowment spending rate among public institutions, the equivalent endowment asset size can be calculated to generate a similar spending as that of the state support (NACUBO, 2008). Effectively, state funding of operations can be viewed in the context of an endowment, or pseudo endowment since the restrictive nature of endowment does not necessarily pertain to state operating funding. By mapping the trend in state funding over time in Research Question 1, a clear indication of pseudo endowment spending was calculated. This indicated the total privately contributed unrestricted assets that would be necessary to supplant existing state funding along with an investment return that would sustain this level of funding. Further, this is also one of the variables contained in the potential decision triad for determining state funding.

The analysis of the change in private giving and consideration in the change in state funding as a change in pseudo endowment size presented an alternative view of the financial resources potentially necessary to support the institution. The issue of the change in private giving effecting the change in state funding was extrapolated within the context of the change in endowment level necessary to substitute for state funding. This helped conceptualize the financial assets necessary to sustain the institution should state support change.

Theoretical Context of Public Decision-making on State Support of Public Universities

After generating a knowledge of state public budgeting for public universities along with an understanding of the rationale for private giving and the use and comparison of endowments, it is necessary to understand the theory behind public funding decision making, given the robust institution the framework of this research espouses, and the need to understand the relationship and factors between increases in private giving and increases in state funding. The knowledge that private giving affects educational quality ranking is followed by the need to understand the relationship between the changes in fundraising and state funding. This section will review public choice theory, zero-sum theory, and bounded rationality theory (Buchanan & Bullock, 1962; Ostrom & Ostrom, 1971; Thurow, 1987, & Simon, 1976). The intent in understanding these theories was to demonstrate the literature gap and serve as a basis in developing the research questions.

Public Choice Theory

The examination of the relationship of fundraising change and state support change was based upon an understanding of public choice theory, which is rooted in political economy and used to determine societal resource allocation preferences through the legislative process to attain the maximum social benefit (Herber, 1983). The theory has evolved over time with the core research of Buchanan and Tullock (1967) examining individual economic preferences demonstrated through the political system, establishing an approach for analyzing political decision making. The focus of public choice theory in the context of the proposed research questions is on decision making cost in terms of offsetting fundraising increases to reach consensus. This incorporates the direct cost

involved in funding, or not funding, higher education, the opportunity costs of bargaining through the political process, and the trade-offs between competing public demands (Herber, 1983). Society could follow non-strategic behavior in order to allow for collective decisions (Herber). Decision making costs become an outcome of the public choice bargaining in order to reach agreement (Buchanan & Tullock, 1967). Public choice involves making decisions within a dynamic context of higher education as a public good, particularly when examining the relationship of fundraising and state support.

Constitutional Economics

Within public choice theory is the concept of constitutional economics that accounts for the rules pertaining to the legislative process that restricts the role of government and the scope of its decisions (Buchanan & Tullock, 1967). Buchanan and Tullock (1967) espoused the operational stage of rule-making that stem from the constitutional limitations. The budget process with the collective action required among policy makers can be used to frame funding decisions in terms of external costs and decision making costs. External costs are related to the private action taken by others over which the individual has no control and which minimizes utility to the individual (Buchanan & Tullock, 1967). Decision making costs are an outcome of the bargaining in order to reach agreement (Buchanan & Tullock, 1967). External costs increase when the level of consent necessary for collective action decreases, and decision making costs increase as the level of consensus approaches unanimity (Buchanan & Tullock, 1967). These aspects are useful in examining the relationships between budget development, determining higher education funding in a state government responsible for many public

functions, and the role of the interest groups in determining funding. Moreover, as the external costs and decision making costs shift this may change the impact fundraising has on the decision making process.

Public Administration in State Funding Decision-Making

Buchanan and Tullock's (1967) work offers a public administration perspective to decision making. The underlying assumptions of public choice assume rational human behavior and the maximization of utility in the decision made which may not entirely be the case in legislative deliberations. The relationship between budget development, higher education funding in a state government responsible for many public functions, and the role of interest groups in determining funding can be conceptualized from this theoretical approach. Moreover, as the external costs and decision making costs shift this may change the impact fundraising has on the decision making process.

Buchanan added to the research, refining his earlier work (1962), with a constitutional level of analysis specifically for fiscal matters (Brennan & Buchanan, 1985). His work emphasized the rules that set the terms and conditions of government (Brennan & Buchanan, 1985). The reason and rules used as process rationality can be seen "as a theatrical performance, the dance of the legislature . . . viewed as a production function in which a due process of legislation has an important bearing upon the quality of legislation yielded by such a process" (Ostrom, 1987, p. 245). Ostrom (1975) linked several studies in his landmark work that captured the theme of a public choice theory. Public goods and services were recognized as having potential costs and benefits for users that can be internalized through the boundaries established by a jurisdiction or legislature (Olson, as cited in Ostrom, 1975). Public choice theory enables the

formulation of different solutions for public goods and services within the public sector by applying economic reasoning to nonmarket decision making, such as higher education funding (Ostrom, 1975). Public choice replaces the traditional "economic man" with "the decision maker" (Ostrom & Ostrom, 1971, p. 205). Public choice is concerned with the production and output of public goods and services (Ostrom & Ostrom, 1971). Depending upon the economic climate and competing demands, the definition of higher education in terms of a public good may change and effect state funding.

"State funding of higher education . . . is seen as discretionary in that its caseloads (enrollments) can be reduced or its planned growth postponed, or students can be asked to pay more, to help balance the state's budget in times of need or when other fields have higher policy priority" (Zumeta, 2004, p. 85). Higher education has other sources of funds that policymakers may conclude can be utilized, depending upon available resources and competing policy interests (Zumeta, 2004).

Education investment of democratic governments may appear egalitarian, increasing access to low cost or subsidized university educations (Thurow, 1987). Without government investment, education would have remained less accessible to all but the wealthy (Thurow, 1987). The replacement of public egalitarian skill investment in the form of loans and tuition increases as taxpayer funds are withdrawn, raising access concerns for financially needy students (Thurow, 1987). The public funding of higher education recognizes that there are societal benefits that do not accrue to the individual, the tuition-paying student, and there are investments that the economy requires to survive but does not make for itself (Thurow, 1987). Private giving can help to mitigate such

concerns from both the public subsidy perspective and the tuition-paying student perspective.

Using public funding and private giving as means to ensure low, or reasonable, tuitions at state institutions, has enabled more low- and middle-income students to attend. In society, with many inequalities of different form, there are infinite inequalities that affect students' ability to pursue educational opportunities. Equalizing opportunities can help with some of more egregious inequalities (Grubb & Lazerson, 2004). There is evidence, though not generalizable across all institutions, that by increasing endowment and the related payout this could "substitute for tuition increases and to allow a significant expansion of aid without reducing the real value of the endowment" (Gravelle, 2007, p. 6). The desirability of using endowment spending or private giving to directly offset tuition does not address the effects on other institutional variables, including enrollment over time, if additional funding were provided to instructional or research related expenditures. Such aspects need to be recognized but are beyond the scope of this research.

Higher Education as a Public Good

The individuals involved in funding decisions, from university leaders to legislators, are assumed to be self-interested, rational, adopting maximizing strategies that will provide the highest net benefit while having an awareness of information on the subject (Ostrom & Ostrom, 1971). There is a continuum for classifying goods, ranging from purely *private goods* to purely *public goods*. Purely private goods are highly divisible, discrete units, "provided under competitive market conditions where potential consumers can be excluded from enjoying the benefit unless they are willing to pay,"

such as a new car (Ostrom & Ostrom, 1971, p. 206). Purely public goods are highly indivisible, "where potential consumers cannot be easily excluded from enjoying the benefits," such as national defense (Ostrom & Ostrom, 1971, p. 206). Most decision making, including support of higher education, falls in between the two poles on the continuum. The provision of public goods involves externalities that cannot be contained within a market transaction. Individuals seek to maximize their own welfare by taking advantage of public goods at minimum cost (Ostrom & Ostrom, 1971). This generates deliberations among state policy makers, who may view higher education as more of a private good, causing the prioritization of funding to decline in determining appropriation levels.

Generally, if a state views higher education more in terms of a public good, funding increases and becomes a substantial portion of an institution's resources, reducing the reliance on tuition (Herber, 1983). If the Maryland governor and state legislature equate higher education more with a private good to benefit the individual, state support is reduced with tuition and private giving substituted to provide the necessary funding. Under a former gubernatorial administration, the chair of the Board of Regents for the USM supported tuition increases and encouraged students to graduate faster (Martin, 2006). There was a perception that the user, or student, was the benefactor of higher education (Martin, 2006). The view was that the user should pay more of the cost, and, therefore, tuition becomes equated with a user charge, or fee (Herber, 1983). When private giving is increased and competition for public funding is competitive, under the public choice approach a position could be made to allow private giving to substitute for state funding. At the same time the state could continue to preserve the

notion of higher education as a public good while shifting state funds to other functions. Such aspects become a driver in testing actual financials for a correlation between fundraising and state funding.

Constrained versus Unconstrained Visions

The public choice theory appears to share similarities with Sowell's (1987) constrained and unconstrained visions. People's vision of human nature and social progress influences their assumptions and decisions on how to achieve a good society (Sowell, 1987). The vision continuum goes from one end, the constrained vision, where people and their actions are inherently flawed and driven by self-interest (Sowell). This view sees the greatest good for the most people as being achievable through processes that maximize free and open exchanges among people and limits the role of government to manipulate markets or intervene (Sowell, 1987). This vision seems similar to the notion of a private good. The state would maintain minimalistic support for higher education, leaving the fundraising efforts to continue unscathed to support the mission of the college.

At the opposite end of the continuum is the unconstrained vision. The unconstrained vision believes that people's nature and institutions can be improved (Sowell, 1987). The unconstrained vision welcomes direct government intervention for the good of society (Sowell, 1987). Equating Sowell's vision to public choice theory, there is a great deal of similarity between the unconstrained vision and how an individual categorizes higher education as a public good (Sowell, 1987; Ostrom, 1975). This research is intent in finding the relationship between the change in fundraising and the change in public funding of higher education. In an effort to determine how policy

makers choose to fund higher education, acknowledging the policy maker's vision of people and institutions will help understand how they may respond to funding scenarios.

Zero-Sum Theory

The debate on higher education as a public versus private good has generated much discussion on the level of public funding. From the zero-sum perspective, voters and taxpayers would have little reason to support higher education funding that benefit other students to the potential detriment of one's own (Grubb & Lazerson, 2004). Zero-sum considerations assume that decision factors are always in conflict, based on ideological and traditional evidentiary reasons (Koertge, 1999). This orientation is limiting in that it does not recognize a "both/and" approach where decision parameters may consider the choices between two options as "either/or" under a zero-sum consideration, yet the chance in macro capacities of an organization, such as a state's fiscal capacity, may enable the zero sum option between expanding boundaries. Given the highly individualistic society, there are public dimensions that permeate the policy making and funding decisions, linking education and growth and education and competitiveness (Grubb & Lazerson, 2004). This has aided in justifying public funding necessary to support higher education.

The political and financial dynamics that surround funding decisions provide support for the zero-sum theory in such an environment. Envisioning a zero-sum solution may enable the governor and legislators to conceptualize increased private giving as new funds that allow the state funding commitment to the university to be reduced and redirected to other public goods and services (Thurow, 1987). Even in situations such as private donation incentive programs, when the state mandates no substitute public funds

for a state match of private giving, this does not prevent a reduction of increases in revenues that may have occurred prior to the availability of increased private giving (Education Article, § 17, 2008).

The trend in the relationship between private giving and state funding over an extended period of time would be useful to understand and incorporate into higher education planning. The underlying point of concern is that the college or university wants to ensure on-going, sustainable public support while also increasing private giving in an effort to diversify and expand revenues. In the zero-sum scenario, the winnings equal the losses (Thurow, 1981). The gains, what would be the private contributions, are not allocated to the same group as the losses, in this case, a reduction in the growth of state support of higher education. The allocation of losses to the university, even through a reduction to the increase in state funding of higher education creates an economic and political paralysis that undermines the sustainability of efforts to increase private giving while also ensuring on-going state funding (Thurow, 1981).

Bounded Rationality Theory

State funding of higher education can also be examined through the theoretical lens of bounded rationality theory. Simon's (1976) theory of decision making builds on this context recognizing that individuals and organizations make decisions with limited rationale. The research questions relate to this bounded rationality between fundraising, endowment sustainability, and operations and capital investment funding decisions promoted by higher education leaders and ultimately made by state policymakers. In place of objective rationality, decisions are made with bounded rationality (Simon, 1976). Decisions are made without complete knowledge of all possible alternatives and an

anticipation of the full range of consequences that will follow each choice. Awareness of this process enables institutional leaders to actively engage in lobbying and testimony to manipulate the rationality in the decision making. Empirically analyzing the relationship between fundraising and state funding may clarify bounded rationality in terms of state support of higher education and public choice among competing programs and fits within the framework of high performance organizations (Light, 2005).

Beyond bounded rationality a triad of variables may be used in funding decisions, such as the endowment expenditure ratio, the pseudo endowment equivalent for state funding, and the performance indicators. These variables that relate wealth and quality may be more prominent in state funding decisions for higher education then decision making theories in general (Johnstone, 1993; Swensen, 2000; Michael, 2005). Bounded rationality attempts to address vulnerability aspects in creating the high performance institution, such as ignorance and inconsistency (Light, 2005). However, the use of explicit variables, though limited in the case of the three presented, may align the decision making process with aspects of the high performance institution.

Oversimplified Rationality versus Complex Decision Making

Bounded rationality indicates that decision processes may become oversimplified as an individual "makes his choices using a simple picture of the situation that takes into account just a few of the factors that he regards as most relevant and crucial" (Simon, 1976, p. 30). Currently, there is anecdotal literature and attitudinal survey responses that indicate consideration has been given to institutional fundraising when state funding decisions for higher education are made (Johnstone, 1993; Ruppert, 1996). Simon differentiates bounded rationality in terms of economic theory and administrative theory.

While the economic person selects the best alternative from all possible choices in accord with sound economic theory, the administrative person oversimplifies decision making with relatively simple rules of thumb because she or he cannot possibly evaluate the complete opportune set of choices (Simon, 1976). Rational choice occurs when a single alternative is selected whereby consequences rank highest in the decision maker's payoff outcome (Allison, 1971). The assumed oversimplification of decision making through bounded rationality may be of limited use in this research if institutional leaders are promoting their positions among the state legislators, fundraising is increasing, and competition for limited state funds is greater. Conditions of rationality may be limited, yet the decision making process may not be simple.

Actual decision making often lacks the chronology of first perceiving a problem, followed by defining a problem (Simon, 1976). This aspect may be mitigated in the research by testing for a relationship between current fundraising and state funding in the succeeding year or years. Simon (1976) also identified a system of values as criterion for choice. The challenge is to design an environment that sets forth a clear set of values that govern the organization so that an individual or group of individuals will make organization decisions that are consistent with clear organizational values. A strategic indicator, or ratio, could support such organizational values, or a funding formula may do this as well. Moreover, the public intent of higher education codified in state law may help establish a consistent process; however, if the funding levels do not fulfill the statutory goals, then the entire legislative intent is undermined.

Limitations of Bounded Rationality

There are shortcomings to bounded rationality theory. Applying the theory to an operating model does not completely explain the decision making process in organizations characterized by dual and competing hierarchies. The application of theory does not provide elaboration on the environments where goals are ambiguous and beliefs and values are numerous and conflicting (Hatch, 2006). Rational choice assumes relatively clear and unified goals that are not always present in higher education. The theory also suggests that decisions are made without complete knowledge and decision makers are forced to compromise their decision processes by selecting a course of action that is satisfactory, or good enough, as opposed to selecting a course of action that represents the objective rational, best alternative from among those available (Hatch, 2006). In addition, policy makers, administrators, and donors bound rationality differently. With limited consensus at times on definitions, the individuals' actions are only "moderately contingent on those of their neighbors or on their own personal intentions" (Weick, 2001, p. 387). Finally, time and resource constraints, along with availability of time and attention span, result in decision making using bounded rationality that may only *satisfice* and not provide a consistent pattern in relating to the proposed research questions.

Organizational Accountability: Restructuring for Available Resources

Bounded rationality does support the need to improve the organization in terms of accountability and restructuring for available resources. According to Osborne & Gaebler (1992), the accountability organizational improvement requires focus on resource allocation and outcomes. The focus of policy makers is directed toward outcomes

(Zumeta, 2001). Osborne and Gaebler's seminal work (1992) on restructuring and reengineering operations through the application of business principles to public sector operations for quality improvement and cost reduction is applicable to the public higher education institutions. "Public colleges and universities are legally creatures of the state and are substantially supported by tax revenues" (Zumeta, 2001, p. 156). The nominal ownership of public institutions by the states and the accompanying financial role in their support give rise to the claim for public accountability (Zumeta, 2001).

Osborne and Gaebler (1992) systematically supported the need to reinvent public organizations with a focus on accountability. However, the weakness of their work stems from a lack of clarity on the balance between the state's interest in accountability and the university's interest in autonomy. When private giving becomes a successful outcome in terms of the proposed research of private giving per student FTE and the relationship to state support per student FTE, this may represent a quality improvement in terms of providing more funding for education and legitimizing a cost reduction by substituting private gifts for funds from the state.

Fundraising Rationale and Endowments

Analysis of the relationship between the increase in private giving and the change in state funding through the capital and operating budgets incorporates an understanding of the literature of practice and descriptive reports that link private giving and state funding. Private giving is generally the source of funds to be endowed in support of the institution in perpetuity (American Institute of Certified Public Accountants, 2002). An understanding of the rationale behind fundraising efforts, particularly in light of this research's framework of Light's *Four Pillars of High Performance* will clarify the

purpose of fundraising, the relationship to endowments, and the need to analyze the relationship of fundraising to state funding for public institution.

Literature of Practice

The literature of practice indicates that funding of higher education is increasingly more fiscally restrained (St. John & Parsons, 2004). Public institutions are pursuing private giving efforts to offset reductions in public funding, assist with increasing operating costs, provide capital investment, and diversify funding sources. While many institutions have relied on rapid tuition and fee increases along with aggressive pursuit of private sources of revenues to offset reductions, there is discussion in the literature to suggest that fundraising may affect state funding (Hearn, 2003; Johnstone, 2002).

Politics of Public Sector Budgeting

Johnstone's seminal thesis regarding public budgeting and costs of higher education sets a foundation for this research. According to Johnstone (1993):

> Increased nongovernmental revenues, e.g., from tuition fees or private giving, may be met with a commensurate withdrawal of taxpayer-oriented funds. In short, traditional practices of public sector budgeting tend . . . to discourage savings, resource reallocation, the augmentation of public resources with private funds, and decentralized decision making. (p. 10)

Johnstone recognized the tendency of government to maximize financial control while minimizing financial expenditures (Johnstone, 1993). Productivity and efficiency factors within public funding of higher education may become of secondary importance as more substitute financial resources are available that enable the government to adjust priorities of funding. Johnstone's thesis is a primary and foundational influence in the development of limited, but related, work. If, in fact, Johnstone's statement is accurate then the university leadership would need to be proactive in dealing with state officials by

attempting to position the university to benefit from both successful fundraising and continued and increasing state support. This thinking becomes the basis for selecting Light's (2005) *Four Pillars of High Performance* as the theoretical framework of this research which will be discussed further in this chapter.

Attitudinal Survey of State Legislators

As the literature of practice and aspects of state budgeting in higher education developed, there was a 1995 study and follow-up 2001 study of state legislators' attitudes on higher education commissioned by the National Education Association (Ruppert, 1996; Ruppert, 2001). The qualitative research targeted state legislative education committee chairs, finance committee chairs, senate presidents, house speakers, majority leaders, and minority leaders. The 19 open and closed-ended questions contained in the survey instrument were sent to respondents prior to the actual telephone interview intending to allow them to contemplate their answers with a focus on the current and future legislative agendas pertaining to higher education (Ruppert, 1996; Ruppert, 2001). The interviewer asked the questions but was also able to ask related follow-up questions. Interviews were recorded for transcription and analysis and ranged from 20 to 70 minutes with an average of 30 minutes (Ruppert, 2001). There were 64 interviews representing all 50 states in 2001, an increase in coverage from 49 states in 1996 (Ruppert, 2001; Ruppert, 1996). While each state was represented at least once in the 2001 survey, the megastates, those states appropriating more than $1 billion to higher education, were specifically targeted for two interviews (Ruppert, 2001). The qualitative data were analyzed using Non-numerical Unstructured Data Indexing Searching and Theorizing (NUD*IST 4) software. Given the purposeful sampling among all 50 states, the

leadership position of those surveyed, and the legislative agenda affecting higher education, the sample is considered representative of the state legislatures.

There are weaknesses in the research. The methodology does not account for the economy at the time of the survey. Moreover, the research is weak addressing the role of the executive branch of state government in affecting the legislative agenda. In many states, where the governor plays a strong role in developing the higher education budget, there is not much reflection on this aspect in terms of the questioning.

Findings of the Research

Ruppert's (1996, 2001) landmark studies have added weight to Johnstone's (1993) thesis and are responsible for framing the research questions and the methodology of the proposed study from an attitudinal survey to an analysis of the actual financial data which will be discussed in Chapter Three. In viewing higher education issues within state legislatures, the issue of funding receives the most attention and visibility (Ruppert, 2001). The open-ended questions produced the notion of higher education as budget balancer, relating to the issue of higher education as typically the largest discretionary item within state budgets and doing well in good economic times and disproportionately worse during periods of fiscal restraint (Ruppert, 2001).

Comparing the responses from the 1995 and 2001 surveys demonstrates that legislators tend to me more dissatisfied with state support for higher education, with 44% saying the level of support was adequate in 1995 and 22% responding similarly in 2001 (Ruppert, 1996; Ruppert 2001). The elected officials were more hopeful that higher education's share of the total budget would increase, with 16% indicating the state's budget would increase in 1995 and 46% saying the same in 2001 (Ruppert, 1996;

Ruppert, 2001). Naturally, the responses were likely reflective of the overall economic picture at the time of the survey, although the questions did not explicitly address the current economy. Interestingly, tax cuts were among the competition for higher education funding mentioned by respondents, along with primary and secondary education, Medicaid, safety, and corrections (Ruppert, 2001). There was no indication of the role of previous year allocations in the determination of current allocations (Toutkoushian & Hollis, 1998). The surveys' results suggested that states were in the process of considering alternatives to enrollment driven formula with more focus on outcomes rather than inputs (Ruppert, 2001). This would appear to parallel the changes in primary and secondary education with the advent of *No Child Left Behind* and the increased emphasis on performance measures.

Funding factors affecting state support

The survey measured the legislators' weight of factors determining higher education funding. Almost 60% of the 2001 respondents indicated the ability of institutions to provide for themselves through tuition, research funds and gifts is a factor in determining higher education funding (Ruppert, 2001). In 1995, this figure was 68%, which may be in line with the response to the adequacy of funding (Ruppert, 1996). In 1995, the adequacy response was approximately twice as high as 2001, indicating there may have been a belief that institutions could provide more revenues for themselves at that time. As funding became more constrained in 2000, legislators may have felt such constraint applied to a university's ability to generate other non-public revenues. It would have been beneficial to break the question out into further detail to distinguish between an institution's ability to raise more tuition versus generate more private giving and

seeing how the legislators weigh such factors in determining appropriations. However, this research did add further weight to Johnstone's thesis and supports the proposed research to a focus on analyzing actual financials.

State Policy Implications of Increased Private Giving

According to Breneman and Finney (1997), "the pursuit of voluntary gifts through fundraising expenditures and activities is viewed as the more important and relevant strategic element in the financial futures of . . . public institutions" (as cited in Paulsen, 2001, p. 198). If the growth in fundraising persists in the financial future of higher education, the role of the state legislature and governor in reconciling such private giving with requests for state funding needs recognition. When a college is striving to increase private giving, there may be practices by the state funding authority that diminish the net effect of such fundraising (Johnstone, 1993). Conversely, state policies and practices have attempted to leverage private giving with matching state funding which will be discussed further in this chapter (AGB, 2008).

Such actions could be related to increased private giving but may also be affected by exogenous influences, such as competing public funding demands, restricted tax receipts, inflation, and other economic and political variables that make a determination of causality difficult (Nettles & Cole, 2001). If fundraising is successful in prosperous times, state policy leaders may view the outcome differently than if macro-economic effects and competition for state funds were more problematic (Zumeta, 2001). Policy makers and institutional leaders favor the matching funds programs since they leverage private funds, increase incentives by allowing universities to fund scholarships, enhance research capacity, attract scholars, and even lower state capital expenditures for buildings

by raising private contributions (AGB, 2008). The concern is whether such state matches redirect existing public funds that institutions may have otherwise received. While AGB (2008) has indicated this is not the case, the impact on the rate of change in state funding or the lag effect of successful fundraising has not been included in the analysis. While most state matching programs were initiated when revenues were strong, support tends to wane during financially constrained periods through termination of the program or delays in receiving the qualified state funding matches (AGB, 2008).

Lottery Funding Research

There are similar issues between changes in private giving and changes in state funding and the implementation and changes in lottery funds and changes in state funding. The lottery funding program can be viewed for similarities with its public funding revenues outcomes. Several states have earmarked state lottery proceeds to be distributed to public education, primarily though scholarships, grants and allocations directly to institutions. Several studies found that "states that adopted lotteries increased spending on education per capita during the early years of the lottery, but as time passed, these same states witnessed an overall decrease in spending for education" (Stanley, 2004, p. 529). The major issues identified as to why lottery revenues have not generated a wave of additional resources for public institutions is that the lottery revenues decline over time, lottery revenues are fungible and can supplant existing funding, lottery proceeds have financed tax reductions, and states with lotteries tend to receive less federal funding than states without (Stanley, 2004).

The results of lottery funding have been mixed. State-by-state analysis has indicated that lotteries do not increase state aid and may divert an equal amount of

funding to other state operations (Lauth & Robbins, 2002). The research on lotteries, based on these studies, indicates the findings are not consistent. The likelihood of lottery revenues supplanting state funding revenues that would have been budgeted for higher education appears to be contingent upon the length of time the lottery has been operational, the economy affecting the revenue capacity of the state, and other earmarking requirements (Dee, 2004; Lauth & Robbins, 2002). Nevertheless, similar traits may occur when studying private giving and state funding, and an understanding of the lottery research is quite useful for generating research questions. At the very least, the findings of the lottery research support an interest in examining a relationship between changes in fundraising and state funding.

Descriptive Reports

Descriptive reports represent research and data available that may be less academically rigorous yet augments this topic, especially pertaining to the rationale for fundraising in a public institution. There has been evidence within primary and secondary education of organizations that have been successful with fundraising and securing grants that have seen a corresponding reduction in public funding, in support of Johnstone's (1993) thesis. The *FY 2007 Budget of the United States* stated in the cost savings guide that $93.5 million had been eliminated from the Department of Education's Smaller Learning Communities program as a result of funding from the Carnegie Corporation of New York and the Bill and Melinda Gates Foundation that supported creating smaller learning communities (Office of Management and Budget, 2006). Furthermore, there have been institutional efforts to raise funds to make up for public funding reductions, indicating a relationship between fundraising and state funding. A prominent example

was an effort in Oregon by parents to sell their plasma to blood banks to raise funds to save one teaching position that was being eliminated due to cuts in state support (Barton, 2002). This experience and other similar efforts to raise funds to make up for budget reductions had public school foundations concluding, "if all you do is raise money to plug the holes in the district budget, to get the politicians and legislature off the hook . . . then you're not doing anything except allowing a bad situation to continue" (Pasquarella as cited in Barton, 2002, p. 2). This literature indicated directionality of fundraising caused by state reductions, a position this research does not assume.

According to data from the National Center of Educational Statistics (NCES) (2002), the share of governmental funding in instructional revenue of public degree-granting institutions has declined from 45.6% to 35.6% from 1980-1981 to 2000-2001. Testimony during the Secretary of Education's Commission on the Future of Higher Education (Spellings Commission) hearings revealed a current perception toward fundraising and state funding. Based on the success of some institutions with their billion dollar campaigns, there is a perception that colleges do not need public funding (Dickeson, 2006). A case in point of this challenge is the University of Texas with 80 percent of its endowments restricted by donors' wishes (Arenson, 2008).

Unrestricted endowments provide maximum flexibility for the institution. "No source of revenue is quite as benign and reliable as revenue from unrestricted endowment, once the institution has it" (Johnstone, 2002, p. 32). Attributing the entire endowment as a resource for funding of the operating budget may not accurately reflect restrictions on the endowed funds. Universities and colleges do not always know the intent of donors (Worth, 2002). Conversely, without resource independence or

discretionary funding, the market, as directed by private donor restrictions, would enslave institutions and faculty (Massy, 2003).

Despite the potential of such a perception, tight funding may not be a result of economic and financial cycles but a permanent challenge (Association of Community College Trustees, 2004). Public higher education leaders concerned about remaining competitive realize that their institutions are "more subject to fluctuations in the business cycle" than their private counterparts (Zemsky, Shaman, & Shapiro, 2001, p. 14). States are the largest single source of revenue for U.S. colleges and universities, providing approximately one-quarter of the income to all institutions and over one-third to public colleges and universities (Heller, 2006). College leaders recognize that the "commitment to students requires increased attention to the development of alternative revenue streams, and private fundraising is the most logical place to start" (Ryan & Palmer, 2005, p. 47). An understanding of the relationship of fundraising to state funding would enable college leaders to strategize how best to increase revenues.

Theoretical Framework: Four Pillars of High Performance

The financial role of the state in higher education with changes in private giving, the historical perspective of fundraising, and the literature of practice and descriptive reports have been reviewed through a theoretical framework for undertaking this research. This framework in the *Four Pillars of High Performance,* includes *alertness* as the institution thinks in terms of the future, *agility* when the institutional leadership organize for responses to changing academic and research needs, *adaptability* as the institution challenges prevailing wisdom and unbalances their scorecard by measuring in future tense, and *alignment* with a continuing focus on mission (Light, 2005). The four

pillars arise from an understanding of predictive relationships with performance and vulnerabilities to creating the robust institution (Light, 2005). Such a framework aids in guiding the theoretical context that is reviewed and helps in the formulation of research questions. The framework is discussed more specifically at this point as a rationale that forms the basis for the theoretical context of the reviewed, although aspects of the theoretical framework have been integrated into the discussion of this chapter. The framework is also a basis for the methodology chosen and discussed in Chapter Three.

As this chapter transitions, prior to espousing the literature gap, a more formal introduction to the framework of this research is timely and underscores the interest in using private giving and state funding as resources to advance the high performance institution. *The Four Pillars of High Performance* (Light, 2005) is based on RAND's previous research examining how an organization can achieve and sustain high performance, a motive of this research and useful for inclusion in a model to respond to this subject.

Through use of mixed-methods research, including a meta-analysis of almost 6,000 RAND reports, open-ended interviews with over 100 principal investigators of RAND, and a survey of another 126 researchers, a theory of the high performance, robust organization is developed (Light, 2005). The *robust institution* is the one that thrives and prospers in a volatile world, hedging against vulnerabilities and adapting to changing situations by shaping the future (Light, 2005). This framework offers a solid perspective in which to analyze the relationship between fundraising, state funding, and institutional mission and organize a response to the findings of this research.

Based on Light's (2005) research, the ability of an organization is based on *alertness, agility, adaptability, and alignment.* Specifically, *alertness* encompasses the measurement of results and clearly defined expectations. *Agility* provides greater discretion to the institution and faculty along with enhanced communications. *Adaptability* is the determination of student, or customer, satisfaction and creating incentive. *Alignment* is the organizations provision of information and technology. These pillars apply to a university as well as the state legislature. The robust, high-performing organization succeeds "against the unknowable by minimizing damage (hedging) and maximizing impact (shaping)" (Light, 2005, p. 97; Hatch, 2006). The research recognizes the organizational challenges to high performance that include ignorance, inflexibility, indifference, and inconsistency (Light, 2005). The resources to support higher education, including private giving and state funding, help shape the institution's vision of the future, increases flexibility, help challenge the current status and wisdom, and focus on mission (Light, 2005). Light's pillars are the theoretical framework for undertaking this research.

Light's (2005) work has been criticized for being too static, presented as a set of best practices without much detail rather than an answer, or model, on whether organizations can change (Heinrich, 2006). The focus on RAND research does limit the application of academic literature to organizations, and there are disadvantages to lumping the public and private organizations together in the research (Heinrich, 2006). Nevertheless, the high performance matrix is useful in thinking about fundraising from the institutional perspective as well as in thinking about how to best position the

institution to ensure growing support from the state executive and legislature. Applying this framework to the review of literature on this subject was useful.

The application of the *Four Pillars* to higher education provides a segue to shift the focus on education quality and quality ranking to performance indicators with ability to benchmark among similar institutions (Light, 2005). A slight shift along spectrum was evident between Swensen's (2000) research relating endowment and quality ranking and Michael's (2005) work using performance indicators. A core question of Light's research was how organizations will harden themselves to prosper no matter what the future. This stimulates the focus on institutional wealth and quality as suggested through a triad of variables, including the endowment expenditure ratio, the equivalent state pseudo endowment, and student and faculty performance indicators.

The implication of the *Four Pillars* framework is that in undertaking a statistical analysis of the data from public universities and comparing the change in private giving, a threshold may be evident in terms of wealth and quality, as gauged through performance indicators. The endowment expenditure ratio generates one indicator of wealth while the state funding equivalent provided by a pseudo endowment provides another wealth indicator that could be factored together to be analyzed against changes in private giving. These wealth indicators will demonstrate the private giving and endowment size necessary to support current levels of funding. Moreover, the performance indicators collected from each Maryland public university could be used to develop a relationship to education quality and changes that may relate to funding. This research does not address an analysis of performance indicators and wealth indicators. The focus of this literature review has been on the relationship between the change in

state funding and the change in private giving at Maryland four-year, public institutions. The wealth threshold would be included in the study.

Further analyzing the *Four Pillars of High Performance*, the construct indicates that "becoming robust requires evidence-based decisions at every step of the change process" (Light, 2005, p. 242). Intuitively, this may be a short-coming of the decision-making process, particularly when considering public choice theory and application of bounded rationality in the upcoming section of this chapter (Buchanan & Tullock, 1967; Simon, 1976). Measurement is essential for maintaining the high-performing organization (Light, 2005). The research on this relationship between private giving and state support is virtually untapped from the financial measurement perspective. Anecdotal evidence and attitudinal survey results on this subject are weak at best in application to higher education (Johnstone, 1993; Ruppert, 1996; Ruppert, 2001). This framework sets the context for analyzing the gap in the literature, the ability to deduct the research questions, and discuss a potential model to be created based on the findings for higher education leaders.

Other Factors Affecting the Relationship Between State Funding and Fundraising

There are a few broad factors that may influence the relationship between state funding decisions and changes in fundraising. This includes the nature of higher education oversight within a given state, private donation incentive programs, and other dedicated revenues, such as the proceeds generated through lottery programs (Nettles & Cole, 2001; AGB, 2008; Stanley, 2004).

State Higher Education Oversight

Building the research questions while controlling for the policies of a single state, required an awareness of how state oversight of higher education is performed. According to Berdahl (1974), the taxonomy for the governance structure of the fifty states included states with no coordinating structure, states with voluntary coordinating associations, states with an advisory agency, states with regulatory agencies, and states with consolidated governing boards (Nettles & Cole, 2001).

The difference between the state coordinating board of higher education and the state governing board is the orientation. A "state board of higher education is . . . oriented toward state government. The statewide governing board is . . . oriented toward state institutions of higher education" (Millet 1974 as cited in Nettles & Cole, 2001, p. 201). Maryland's Higher Education Commission serves as a coordinating board with oversight and responsibility for the State Plan for Higher Education (Education Article, § 11, 2008). Regarding funding decisions, MHEC "may not recommend against a budget item approved by the Board of [a Maryland public institution] unless the item is clearly inconsistent with the State Plan for Higher Education" (Education Article, § 11-105, General powers and duties, 2008. (i)(4)(iii)(2).

Private Donation Incentive Program

According to the Association of Governing Boards of Universities and Colleges (2008), 23 states have matching funds programs to leverage private giving. Over the past three years of the study, 16 states have leveraged more than twice the state funds for a total of $545 million that has gone primarily to general, position, scholarship, and capital endowments (AGB, 2008). The survey research indicated that states paid their match

through several options to help reduce their maximum obligation in any given fiscal year. Moreover, while the study questioned the sustainability of the incentive program, the indication was that there had been no substitution of direct operating or capital funding under such programs. The detail of AGB's methodology is currently not publicly available. There is no indication that successful fundraising does not relate in someway to changes in operating or capital funds, even if increases were reduced or lagged between fiscal years.

Maryland policy makers recognized the success of private institutions in the fundraising arena. During the late 1980s, legislators saw a need to enact state policy to encourage public institutions to begin fundraising (Education Article, § 17, 2008). Developing other revenue streams for institutions could reduce continued demand for increased funding each year and reduce the pressure on tuition dependency.

The private gifts generated through this legislative encouragement represent a fraction of total expenditures. In terms of existing philanthropy it was a major initiative in terms of funds and administratively beginning to institutionalize fundraising. The legislation recognized that the philanthropy endows the gift and only spends a minimal portion, perhaps five percent, annually from earnings. The legislative intent was designed not so much to be a high-leverage, high impact resource mechanism to fund public higher education in Maryland, but establish the parameters to encourage fundraising efforts over several years, recognizing the nature of endowment and that the gifts and state matches would not supplant existing operating support of the public universities. The donation incentive program needs to be acknowledged in the study for its implications,

incrementally in the short-term, and over the long-term as a means of initiating a commitment to fundraising.

Conclusion

The literature suggests that testing the relationship between the changes in institutional fundraising, or private giving, and changes in state funding using financial data is relevant and overdue. As the historical developments of fundraising in the public institutions expanded significantly in the latter part of the twentieth century, Johnstone (1993) stated his thesis that fundraising may actually end up substituting for state funding of higher education. Ruppert's (1996) survey of higher education issues among legislative committee leaders in 49 states and Ruppert's (2001) later survey representing all 50 state legislatures produced a purposeful sample that indicated an overwhelming awareness among legislators that fundraising dollars can substitute for state funding. This substantiated the existence of the substitution awareness attitude in the legislative setting and confirmed Johnstone's (1993) thesis from an attitudinal standpoint among state policy makers. However, there is little evidence in the literature that such attitude has been translated into legislative action and fundraising has resulted in decreases of state funding.

The issue becomes further complicated with the creation of private donation incentive programs by the states. States provide a match of funds for those public institutions that increase private giving, and the state guarantees not to allow the match to substitute for operating funding (AGB, 2008). Following the framework of Light's pillars of high performance for the robust institution, the incentive for universities to enter the private incentive programs seems wise. Unfortunately, the available literature did not

indicate any relationship between increases in private giving, receipt of the incentive, and any change in the rate of growth of state operating funding to the institution. Further, like the long term outcome of the lottery program, there was no literature to address the long-term effects of allocating state money for higher education in an incentive program rather than in the operating budget. Clearly, there may be a relationship in the growth of total state funding of public higher education by distributing the allocations among operating, capital and donation incentive programs rather than just operating and capital budgets.

The clearest evidence of a relationship between increases in fundraising, albeit grant funds, and public funding was found in secondary education. The federal budget reduction of funding for a secondary education program corresponds dollar-for-dollar to the grant funds received, and the federal budget document clearly outlined the supplanting of funds (OMB, 2006). This descriptive report provides compelling evidence that such funding outcomes could occur in higher education.

The application of public choice theory (Ostrom & Ostrom, 1971) and bounded rationality theory (Simon, 1976) becomes a mechanism for understanding how the funding deliberation process works in the state government with a focus on decision costs, the competition of other public programs for state funds, and funding prioritizations. While all these decisions may be made with limited information, these theories establish the context that higher education funding is part of a competitive process. Moreover, the consideration of higher education as a public good or private good becomes a factor in determining future funding. During the process of establishing funding levels, the state leaders have the ability to access institutional fundraising data and allow this to influence state funding. This serves as a basis for an unconstrained

vision (Sowell, 1987) among institutional leaders as social benefits may intentionally be created through an awareness of how fundraising and state funding decision may be made and enables them to promote their position and lobby on behalf of the institution.

The reinvention of the organization (Osborne & Gaebler, 1992) was frequently cited in literature steeped in accountability and quality improvement. This flowed very well into Swenson's (2000) correlation of endowment size and educational quality which was reiterated in Michael's (2005) cost of excellence study. The studies established the basis of this research that securing additional funding, through both private giving and state funding, becomes a potential means to improve educational quality within the institution. Further, private giving becomes an outcome to help measure accountability. Swensen (2000) did acknowledge that the level of endowment income might lead to an offset in state support, although no data was available to support this statement. An analysis of changes in private giving and state funding among public institutions may have substantiated the claim. Michael (2005) also acknowledged that how a state funds institutions has implications on education quality. Therefore, it would follow that the relationship between fundraising and state funding would have implications on education quality.

Bowen's (1980) revenue theory of costs indicated that affluence is correlated to educational quality. The predominant goals of colleges are to foster excellence, prestige, and transformation. If a college president wants to achieve these goals along with affluence, an interest in building expanded fundraising and continued state support would be necessary. An understanding on whether such a relationship is possible would be beneficial in modeling options to increase educational quality through affluence.

Strategic planning and budgeting indicates that more sources of funding enable more flexibility and stability for the institution. Endowments, the permanent depository of restricted private giving, become the vital margin of fiscal strength to facilitate excellence. Therefore, private giving and state funding become paramount goals of public colleges that want excellence, flexibility, and stability for which there is little quantitative research to support.

Finally, the literature review tapped recent studies on lottery funding for its similarity in how a new source of revenue ultimately acts to supplant public funding (Lauth & Robbins, 2002). Similar research on fundraising and state funding may yield such findings. Moreover, Light's (2005) *Four Pillars of High Performance*, the basis of the theoretical framework perspective clearly espoused the need for analysis from the financial management perspective. The robust institution cannot be achieved without evidence-based decisions (Light, 2005). The Four Pillars framework also provides that foundation to consider state funding decisions in terms of a triad of variables that examine wealth and quality. Alertness, agility, adaptability, and alignment can be structured through an approach where state policy makers focus on wealth in terms of the endowment expenditure ratio and the state funding equivalent pseudo endowment (Light; Schneider, 2006). Quality can be analyzed in terms of student and faculty performance measures that can be monitored and benchmarked annually (MHEC Division of Finance Policy, 2003). The implication is that in analyzing the relationship between state funding and private giving, there would be a common threshold for wealth and performance. State funding and private giving become influential to performance.

In conclusion, the literature has substantiated a gap in knowledge. There was a significant need to examine the relationship between the change in the level of institutional fundraising and changes in state funding in relation to Maryland public four-year institutions. The need for a quantitative study analyzing financial data over an extended period tested Johnstone's (1993) thesis, with Ruppert's (1996, 2001) attitudinal surveys of state legislators, the related theories, literature, and seminal and landmark studies reviewed. The analysis accounted for private donation incentive programs and other specific restricted operating grants that may have increased operating funding. The findings may provide the basis for a model to guide institutional leaders in addressing private giving while ensuring a continued commitment for state funding. The intent of this study and its related model remained to ensure the alertness, agility, adaptability, and alignment of institutional leaders to ensure a robust institution. The study responded to state funding patterns while maximizing fundraising and state funding that the literature suggested enhances educational quality.

Chapter III

RESEARCH METHODOLOGY

The purpose of this study was to examine the relationship between and among the changes in the level of private giving and changes in state funding at Maryland public four-year institutions. As state institutions have become increasingly more engaged in fundraising, and even encouraged to fundraise through state-sponsored incentive programs, the question of the impact of private giving success on changes in state funding is more apparent. This issue arose to prominence in the context of increased fiscal constraint and as a mechanism to help ensure institutional competitiveness. From a postpositivist inquiry perspective, the research questions were approached using quantitative methods. This chapter addresses the research design, the data collection which includes an overview of the databases to be used, data preparation, the analytic approach for each research question, design issues, and presentation and time line issues to summarize the methodology. This quantitative research examined 13 Maryland public four-year institutions retrospectively over a ten year period.

Research Design

The research design, based on the paradigm of inquiry, comprised a theoretical framework and the operationalizing of that framework. The intent was to test for relationships among the data, producing objective and understandable findings (Creswell, 2003). Based on the scientific method of empirical knowledge, this paradigm helped substantiate anecdotal and attitudinal findings within a single state (Johnstone, 1993; Ruppert, 1996, 2001).

From a methods perspective, this study analyzed fundraising, operational and capital financial data retrospectively over 10 years, from Fiscal Year 1997 through Fiscal Year 2006. The quantitative methods applied from a sociological perspective required beliefs surrounding the research to have causal explanations (Koertge, 1999). Using quantitative methods, this design reduced the concept into a small, discrete set of ideas, with variables that are incorporated into the research questions (Creswell, 2003). Through the postpositivist paradigm using quantitative methods and statistical analysis, data was extracted retrospectively from existing databases and standardized financial reports.

Design Framework

The theoretical framework used to develop the research questions of this proposed study used Light's (2005) *Four Pillars of High Performance* as discussed in the previous chapter. The Four Pillars were used as a context for analyzing the policies-in-use, the operationalization of state and institutional actions as demonstrated by the relationship between private giving, state funding, and the need for institutions to remain competitive. This philosophical commitment may be operationalized through collective action when mutual gains for the state and institution are made possible. Such action incorporates constitutional and statutory commitments of resources to education along with the state's higher education administrative structure (Buchanan & Tullock, 1967). This represented the general parameters espoused through state executive and legislative action that emphasize public interest and becomes the basis of funding decisions and public choice (Buchanan & Tullock).

Specifically, the ability of the public university, and even the state government in terms of higher education policies, to attain high performance was based on alertness,

agility, adaptability, and alignment (Light, 2005). *High performance* was gauged through comparison measures of the selected peer institutions similar to the Maryland institutions in mission, size, programs, enrollment, and other characteristics that are contained in the funding performance guidelines (MHEC Division of Finance Policy, 2003).

Each Maryland institution developed their peer institution list with approval by MHEC. The performance measures and current and aspirational peer institutions contained in the funding guidelines, and required by statute, are set by the institutional president and approved by MHEC (Education Article, § 11-105, 2008 (g)(4)). The performance measures for funding guidelines include SAT scores of incoming students, proportion of minority undergraduates, second year retention rates, six year graduation rates, pass rates on select licensing exams, alumni giving rates, research and development (R & D) expenditures, change in federal R & D expenditures, faculty awards, and institution-specific measures (MHEC, Table 1, 2004).

The robust, high-performing organization succeeds "against the unknowable by minimizing damage (hedging) and maximizing impact (shaping)" (Light, 2005, p. 97). This research examined the performance trends over the period of study based on the guidelines and data available; however, the research focus remained on the relationship between the change in private giving and change in state funding. Studying this relationship within this framework enabled the literature review, research method, and data analysis to be undertaken in terms of positioning the institution to maximize funding from both sources in an effort to remain competitive.

Operationalizing the Design Framework

The theoretical constructs underlying the design required acknowledging the codified state policies that directly determine higher education funding, the policies-in-use. In addition, extracting financial and operational data from several databases was used and discussed in the Data Collection section of this chapter. This research extracted the data and analyzed the change in state funding and private giving in terms of comparative units of measure for each public, four year institution in Maryland and in terms of aggregate data for all the institutions studied. The change proportion was measured in two ways. First, the change between two consecutive fiscal years, and second, as the change in data between a given year and two fiscal years, prior or future. Standardized units of measure included use of full-time equivalent student and per capita divisors. The unit of analysis was the institution. The following sections of this chapter provide more detail on the databases used and analyses performed.

Variables were tested to demonstrate a relationship between enrollment, private giving, state funding, and other variables within specified levels of probability (Stage & Manning, 2003). The research controlled for legislative initiatives that directly affect fundraising, such as the Private Donation Incentive Programs. Each research question is discussed specifically in the Data Analysis section in terms of hypothesis, design, link to the theoretical framework, and the variables tested, the rationale for choosing the variables, the sequence of testing, and the connection between the research questions. Furthermore, this research made use of existing databases of state institutional reports and national institutional financial databases, to be discussed in the Data Collection section of this chapter.

Research Questions

The examination of the relationship between the change in private giving, or institutional fundraising, and changes in state funding at Maryland public four-year institutions was approached through six research questions. With a need for understanding the relationships present among several revenue and wealth variables contained in these six questions, the underlying hypothesis based on the literature review was that as private giving increased this acts to substitute for state funding, either through reductions in state funding or reduced state funding increases (Johnstone, 1993; Ruppert, 1996 and 2001). The six research questions (RQ) designed to address the research purpose in this proposal are:

RQ1. What are the funding trends by institution of the past 10 years in terms of private giving, total state funding (operating and capital funding), endowment, and the state pseudo endowment level?

RQ2. What are the enrollment trends by institution of the past 10 years relative to the funding trends in RQ1 (private giving, total state funding, endowment, and the state pseudo endowment level)?

RQ3. Are there statistically significant relationships among total private giving, per capita state personal income, and institutional enrollment, and the total state general operating funding per FTE student?

RQ4. Are changes in total private giving significant predictors of changes in state capital and operating funding to the Maryland public four-year institution?

RQ5. Are total private giving, institutional wealth, and SAT scores statistically significant predictors of state funding?

RQ6. Are previous year state funding, the number of private gifts, and research expenditures statistically significant predictors of the pseudo endowment necessary to support state funding?

Basis of Research Questions

RQ1 and RQ2 served as the overview of the trends in funding, private giving, and enrollment over the ten year period, generating descriptive analyses for this research. RQ2 viewed the ten years of institutional funding trends in terms of a full time equivalent (FTE) student enrollment standardized measure. RQ3 focused on total private giving of the institution while controlling for the state's revenues and institutional enrollment and the relationship to total state general operating funding per FTE student at the institution. RQ4, RQ5, and RQ6 built upon the research problem and analyzed data in terms of other revenue and wealth indicators that were potentially correlated and predictors of state funding. The variables and data terminology are defined in the next section followed by Table 3 pertaining to the Data Analysis Procedures and a section on Data Analysis.

RQ1 enabled interpretation of the descriptive statistics pertaining to funding in more detail for the ten- year period for each institution, by Carnegie classification, and as a composite mean and median of all institutions in a given year. RQ1 allowed observation and description of trends used in interpreting the remaining RQs. Measures of central tendency tested for similarity of the percentage change among each variable. This relationship served as a basis of correlation between the variables (Hinkle, Wiersma, and Jurs, 2003). The descriptive statistics generated for RQ1 included the trends among the changes in private giving and total state funding, which included state operating and

capital funding, the endowment, and the state pseudo endowment. Specific variable definitions and calculations are contained in Table 3.

Similarly, RQ2 was distinguished from RQ1 by incorporating the effects of enrollment on the variables in RQ1. A full time equivalent (FTE) student divisor for each institution was used to calculate the trends among each variable in RQ2. Calculations for both RQ1 and RQ2 of the percentage change for each revenue variable (e.g., private giving and total state funding) was performed between current year and next fiscal year and two fiscal years in the future. When calculating changes in revenue at an institution, the change between the current year being analyzed and the two previous fiscal years was initially used to generate the statistic to capture potential delays in the effects of the independent variables on the dependent variable. Statistical tables and figures illustrated trends over the 10 year period. This analysis helped generate an understanding of how the changes in funding related between institutions, fiscal years, and in terms of proportion of the state budget dedicated to higher education funding.

Measures of central tendency including the mean and median of total private giving and state support by institution was analyzed and illustrated by Carnegie-based classification and fiscal year. The measures of variability, including the range, the minimum and maximum, variance, and standard deviation of the change in private giving, the change in state funding, and the change in the state budget dedicated to higher education operations were generated.

These statistics and graphs provided an indication of aspects of Light's (2005) *Four Pillars*. In particular, this level of analysis offered evidence of *alignment* among all the institutions, particularly by institutional type, private giving, state support, and rate of

change of such funds over 10 years. Further, *adaptability* of the institution in terms of private giving increases was observed.

RQ3 hypothesized that there are relationships among the predictor or independent variables and the criterion or dependent variable, total state general operating funding per FTE student. The RQ was built on an understanding that higher education funding is determined by many factors external to the institution, including the overall state fiscal capacity, competing state funding priorities, and changing demographics (Toutkoushian & Hollis, 1998). RQ3 included the impact of per capita state personal income and enrollment on state funding as predictors of private giving's relationship to state funding. The literature suggested relationships between these independent variables as they relate to the state funding (Toutkoushian & Hollis). In terms of the Light's (2005) *Four Pillars*, this RQ indicated *alertness*, interpreting statewide economic factors generally thought associated with the determination of state funding.

RQ4 was based on the literature that suggested private giving does impact state funding (Johnstone, 1993; Ruppert, 1996; Ruppert, 2001). While this question began similarly to the previous question with a focus on the relationship among independent variables and with the dependent variable, there may be a uniqueness of such a relationship between state capital and operating funding. RQ4 built on bounded rationality theory, considered as having a role in the funding decision process (Simon, 1976). Approaching this research question with this perspective, the intent was to interpret the change in total private giving with the change in total state funding for operations and capital programs. Capital giving followed by restricted and unrestricted giving for operations reflects the priority order among giving types based on recent VSE

reports (Council for Aid to Education, 2007). This composition of independent variables comprises total private giving.

In terms of the Light's (2005) *Four Pillars* framework, RQ4 provided an indication of the institution's *agility* in generating revenues independently of the state while examining the effects of such private giving on state funding. Within the Light's (2005) framework, this research question indicated *adaptability* in that as private giving increased there may be a need to compensate for state funding action related to this change. RQ4 assisted with clarifying whether the institutions were *alert* to the role of the state, enabling the university leadership to position the institution in a manner to ensure that state funding changes do become supplanted by private giving?

RQ5 stemmed from the triad of indicators discussed in Chapter Two. As the literature review suggested, the triad is comprised of private giving, institutional wealth, and education quality. As private giving and wealth increased, education quality ranking indicators were thought to improve (Swensen, 2000; Michael, 2005). While the SAT score was seen as a ranking indicator, this analysis was intended to measure the collective influence on state funding within a specific order of progression (i.e., private giving which generates wealth and increases ranking variable values). The wealth of the institution may impact private giving while the SAT score was an indicator effecting educational quality ranking (Michael, 2005; Swensen, 2000).

RQ6 focused on private giving participation levels along with the previous year's state operating funding and research expenditures as a ranking indicator of educational quality as predictors of state funding (Swenson, 2000; VSE, 2007). The hypothesis of this question moved beyond initially looking at the change in private giving funds and its

relationship to state funding to framing private giving in terms of participation level through alumni donor participation. Previous year state funding and research expenditures were also included as predictors in this analysis. The dependent variable, the state pseudo endowment, represented state support as another approach of accounting for state funding.

RQ6 was designed to aid in supporting the development of how institutional leaders position themselves to ensure increasing levels of private giving and participation to increase state support. Light's (2005) *Four Pillar* framework supported this research question through increased *alertness* as fundraising participation is analyzed, and awareness of how previous state funding can predict future funding. *Agility* is provided through treatment of state funding as an indicator of wealth along with the presence of a performance indicator, six year graduation rates, as a predictor variable. *Alignment*, recognizes that private giving, donor participation, continued state funding, and production output may all have an integrative effect on state funding.

Variables

An understanding of the definitions of variables and data used in this research is necessary. This section serves as a summary of such terminology. The intent of this section is to establish consistent definitions and eliminate repetition of variable definitions throughout the dissertation. The variables used in each RQ are listed in Appendix B. The data for each variable were generally available on an annual basis. The study variables included in this section are organized in alphabetical order.

Alumni donor is the number of alumni reported as participating in private giving within a fiscal year.

Average full time faculty salary represents the mean salary by fiscal year generated from each institution's population of full time faculty. The figure excludes clinical medicine faculty at UMB and faculty at extension services at UM.

Capital funding and *state capital funding* represent revenue provided by the state for improvement and construction of facilities and other capital projects. The terms are interchangeable.

Capital giving is revenue generated through private contributions to the institution restricted to major improvements and construction of facilities and other capital projects.

Capital project is typically represented as a facility or infrastructure-related investment for physical improvements that last several years or decades.

Deferred gift is made by bequest, or through a life-income arrangement with the institution's access deferred until the death of donor (Worth, 2002). This is often considered planned giving. *Total deferred gifts* are the total present value of newly established deferred giving that had funds added to them. This figure includes gifts from alumni, parents, other individuals, foundations, corporations, religious organizations, fundraising consortia, and other organizations. Such outright giving does not include *deferred gifts*. The present value of the *deferred gift* is used rather than the face value, since this corresponds to the tax deduction to the donor allowed by the Internal Revenue Service (CAE, 2007). *Deferred gifts* do not include pledges or bequest intentions. This does not include auxiliary and hospital operations.

Endowment is a wealth indicator that represents "funds invested for the long term, with principal remaining intact and only [capital gains and earning] income being available for expenditure" (Worth, 2002, p. 400-401). The endowment, often managed

through an institutional foundation, represents a doorway to autonomy with few public policies to contain or constrain the usage. Donors typically restrict endowment funds (American Institute of Certified Public Accountants [AICPA], 2002).

Endowment Expenditure Ratio is the measure of the endowment size divided by the total institutional expenditures (Schneider, 2006). The ratio can be used as a performance indicator for comparison of the wealth capacity and private giving productivity.

Expenditures generally refer to the costs incurred for instruction, research, public service, academic support, student services, institutional support, scholarships and fellowships, and operations and maintenance of facilities (Council for Aid to Education [CAE], 2007). Auxiliary enterprises, hospital services and other independent operations are not included in this research's use of the term expenditure.

Fundraising and private giving, considered synonymous, involve the efforts and outcomes of soliciting gifts for the institution (Worth, 2002). For this research, the terms will focus on the revenues generated.

Full time equivalent (FTE) students represent enrollment and the student population of the institution(s) over the course of the fiscal year. While headcount is generally considered a common form of enrollment, this research will utilize the FTE student population. Using FTE student integrates credit hours production with enrollment. A standard number of credit hours are defined as full-time which becomes the basis for computing the number of FTE students enrolled.

Institutional wealth is comprised of the numerator of the endowment expenditure ratio, total endowment, and state support expressed in terms of a pseudo endowment necessary to generate an equivalent level of state funding.

Peer institutions are those selected by each institution for similarity in mission, size, programs, and enrollment and approved by the institution and the Maryland Higher Education Commission to be used in the state's funding guidelines model (MHEC Division of Finance Policy, 2003).

Per capita state personal income represents aggregate personal income based on net earnings, investment income, and transfer payments divided by the population and is an indicator of the state's fiscal capacity (Maryland State Data Center, 2008).

Previous year total state operating funding per FTE student is the total budgeted state funding from the previous fiscal year for an institution's operations divided by FTE student enrollment.

Private gifts are the absolute numbers of individuals or organizations contributing to the institution in the previous fiscal year.

Private giving is revenue representing the outcome of fundraising. *Private giving* is the total restricted and unrestricted giving received by the institution generally in the year prior to the fiscal year of the *state funding* being analyzed. Such giving may support institutional operations or capital programs. Unrestricted gifts for current operations may include Private Donation Incentive Program related funds. Table 3 distinguishes when incentive funds are not included within the research question.

Pseudo endowment, or state pseudo endowment, is a ratio which simulates an unrestricted endowment necessary to support an equivalent spending level equal to state

funding. This ratio recasts state revenue in terms of an institutional wealth indicator. If, for example, an average endowment spending rate of five percent is assumed and the institution receives $25 million in state funding, the pseudo endowment ratio would be calculated by dividing the $25 million by the five percent spending level. The quotient, or endowment size, would equal $500 million. The pseudo endowment, in this example $500 million, would be necessary to produce the equivalent level of funding that the state provides. The pseudo endowment represents a wealth measure of the institution and can be used in comparison with other institutions, both public and private.

Research expenditures represent the research and development expenditures in the previous fiscal year per full-time faculty.

Restricted and capital giving is donor restricted as to how funds are expended (CAE, 2007). Capital giving is a form of restricted giving designated for building related projects.

SAT scores represent the average combined scores of freshmen as a performance indicator.

Six year graduation rate is a performance indicator representing the rate of completion from new full time freshman enrolled in an institution six years earlier. UB and UMB are excluded since they did not enroll first time freshman during the study period. UMUC is excluded since its mission is to serve the adult part time population and such data was not compiled by MHEC.

State funding refers to operating revenue or funding of the institution and does not include capital funding unless explicitly mentioned. *State funding through the capital and*

operating budgets represents the total state funding allocated to support operations and capital projects within the institution(s).

State funding per FTE student is the budgeted state operating funding for the institution divided by the institutional enrollment.

Total private giving includes annual private contributions designated as *unrestricted gifts, restricted gifts,* and *capital gifts*. When the variable is designated without Private Donation Incentive Program (PDIP), this represents total giving without PDIP eligible contributions.

Total state personal income is the total revenue available from personal income sources to support state government functions. State personal income reflects the financial demographics of the state, indicating changes in income level and the population producing the income.

Unrestricted gift is private giving from a donor without restrictions and may be utilized at the discretion of the institution (CAE, 2007).

Table 3 contains the data analysis procedures in an outlined format. Appendix B contains a variables schematic for each research question.

Table 3

Research Questions: Data Analysis Procedures

Research Questions	Sources of Data	Variables	Data Analysis
1. What are the funding trends by institution of the past 10 years in terms of private giving, total state funding (operating and capital funding), endowment, and the state pseudo endowment level?	Maryland Higher Education Commission Data Book; MHEC Peer Performance Analysis Voluntary Support of Education Survey; NACUBO Endowment Study;	Total Private Giving; Total Private Giving w/o Private Donation Incentive Program (PDIP); Change in State Funding w/o PDIP; Endowment Expenditure Ratio; State Funding w/o PDIP; Endowment Market Value; State Pseudo Endowment.	Descriptive statistics; Trends among ratios -endowment expenditure ratio, pseudo endowment state funding ratio, Scatterplots. Measures of central tendency, including mean and median by institution, Carnegie Classification, and fiscal year total composite among all institutions. Measures of variability including the range, minimum and maximum, variance, and standard deviation.

Research Questions	Sources of Data	Variables	Data Analysis
2. What are the enrollment trends by institution of the past 10 years relative to the funding trends in RQ1 (private giving, total state funding, endowment, and the state pseudo endowment level)?	Maryland Higher Education Commission Data Book; Voluntary Support of Education Survey; NACUBO Endowment Study;	Full Time Equivalent (FTE) Student Enrollment; Total Private Giving without PDIP per FTE student; State Funding w/o PDIP per FTE Student; Endowment per FTE Student; State Pseudo Endowment per FTE Student; Change in Total Private Giving per FTE Student; Change in State Funding per FTE student; Change in State Funding w/o PDIP FTE Student; Change in State Funding w/o PDIP per FTE Student in 2 Fiscal Years; Budgeted Expenditures per FTE student; Capital Budget per FTE student.	Descriptive statistics; Trends among ratios -endowment expenditure ratio, and pseudo endowment state funding ratio, in terms of per FTE student; Scatterplots. Measures of central tendency, including mean and median per FTE student by institution, Carnegie Classification, and year; Measures of variability including the range, minimum and maximum, variance, and standard deviation of the change in private giving, change in state funding per FTE student.

Research Questions	Sources of Data	Variables	Data Analysis
3. Are there statistically significant relationships among total private giving, per capita state personal income, and institutional enrollment, and the total state general operating funding per FTE student?	MHEC Data Book; Maryland Legislative Services; Maryland State Office on Planning; Voluntary Support of Education Survey; NACUBO Endowment Study;	Total Private Giving; Per Capita State Personal Income; State Funding per FTE student; Institutional Enrollment, (FTE) Student; Change in Per Capita State Personal Income.	Descriptive statistics; Analysis of correlation; Simple linear regression; Initial significance of $\alpha = 0.05$ for institutional and state analysis. Will report detail for relationships that exceed $\alpha = 0.05$.

Research Questions	Sources of Data	Variables	Data Analysis
4. Are changes in total private giving significant predictors of changes in state capital and operating funding to the Maryland public four-year institution?	Voluntary Support of Education Survey (VSE); Voluntary Support of Education Survey; MHEC Data Book and Peer Performance Analysis; Grapevine Survey of Higher Education Appropriations. Maryland Legislative Services	Total Private Giving; State Funding; Capital Funding; Change in State Operating Funding and Capital Funding.	Descriptive statistics; Analysis of correlation; Initial significance of $\alpha = 0.05$ for institutional and state analysis. May include additional testing at $\alpha = 0.1$, if initial testing is not significant; Hierarchical multiple regression (unable to perform)

Research Questions	Sources of Data	Variables	Data Analysis
5. Are private giving, institutional wealth, and SAT scores statistically significant predictors of state funding?	Voluntary Support of Education Survey (VSE); Maryland Higher Education Commission Data Book; Grapevine Survey of Higher Education Appropriations.	Total Private Giving; Institutional Wealth; SAT scores; State Funding; Average FT Faculty Salary; Change in State Funding to next Fiscal Year.	Analysis of correlation; Initial significance of $\alpha = 0.05$ for institutional and state analysis. May include additional testing at $\alpha = 0.10$, if initial testing is not significant. Hierarchical multiple regression (unable to perform).
6. Are previous year state funding, the number of private gifts, and research expenditures statistically significant predictors of the pseudo endowment necessary to support state funding?	MHEC Data Book and Peer Performance Analysis; Voluntary Support of Education Survey (VSE); NACUBO Endowment Study	Previous Year State Funding; Alumni Donors; Research Expenditures; State Pseudo Endowment; Research Expenditures per FTE Student; Total Private Giving per FTE Student.	Analysis of correlation; Initial significance of $\alpha = 0.05$ for institutional and state analysis. May include additional testing at $\alpha = 0.10$, if initial testing is not significant; Hierarchical multiple regression (unable to perform).

Data Analysis

The RQ1 and RQ2 reported descriptive statistics. The analysis included changes in both total private giving and state funding in total and per full-time equivalent (FTE) student. The endowment expenditure ratio and state pseudo endowment were also included. Measures of central tendency and measures of variability were provided when applicable. Scatterplots, histograms, and descriptive graphs and tables were generated to provide a visual representation of the relationship among variables.

Assumption of independence methodological concern. Following initial testing, extensive consideration was given to the concept of independence, specifically the treatment of the 10 years of data for each institution. A determination was made that the data was not sufficiently independent of each other within an institution. The research design focused on a descriptive analysis of each institution and the testing of institutional averages for the 10 years of data of each institution. This provided 13 cases representing each public 4-year institution in Maryland. Further discussion of the rationale for this change is included in the next chapter under RQ3.

An analysis of correlation was undertaken in RQ3 to RQ6 to determine the strength of the relationship, or association, between variables being tested. This was especially useful between independent variables (IV) when the relationship among several IVs was being tested on a dependent variable (DV) and determining if regression testing was viable. The design using multiple regression models is attempting to interpret the IVs as predictors of the DV in the order presented based upon the review of existing research. As Goldsmith (2007) indicated, this research approach may not resolve the

superstition among variables tested. “Superstition is merely the confusion of correlation and causality” (Goldsmith, 2007, p. 26).

RQ3 through RQ6 design utilized independent variables selected for testing of predictability using regression models based on practical, theoretical, and logical considerations. While there were several atheoretical selection procedures of prediction that rely on statistical criteria to decide, there was benefit to applying available knowledge for determining which independent variables to include. Hierarchical multiple regression enables the entry order of the predictor, or independent variables, both individually or collectively, to be set based on the practical, theoretical, and logical considerations. A block of IVs, as used in hierarchical multiple regression, can make a unique contribution in predicting state funding. Further, it was necessary to acknowledge that a different order of the independent variables results in different increments, which would sum to the same R^2, which represents the proportion of the variation in the dependent variable, Y, associated with, or predictable by, the regression model. A different order of predictor variables may create misinterpretation of the findings. In addition to independence assumption issues, there were multicollinearity issues requiring a review of tolerances and variance inflation factors.

Hierarchical multiple regression model testing helps determine if the correlations between the combined independent variables and the dependent variable were different from zero (Cohen, et al., 2003). This approach was intended to provide an indication of private giving’s role in predicting state funding in the context of total state personal income as an indicator of Maryland’s fiscal capacity and institutional enrollment. In the

event multiple regression testing was not possible, simple linear regression would be initiated between the statistically significant DV and IV.

RQ4 design analysis called for a multiple regression model treating the change in private giving as the collective sum of the predictor or independent variables, Restricted and Capital Giving, and Unrestricted Giving. This research question analyzed the relationship using Total Private Giving and the Changes in State Capital and Operating Funding. This question intended to analyze variables using multiple regression; however, in the event all the variables tested were not statistically significant, simple regression testing may be tried. State funding and private giving was reduced by any Private Donation Incentive Program related funded included in the reported financials.

The hierarchical multiple regression could approach the change in private giving in a two year increment, testing to see if private giving affected state funding two years after it was raised. There may be delayed effects between when a change in private giving occurs and if, and when, it is factored into state budget decisions. The analysis with a two year delay (X+2) was intended to control for this potential effect. This research recognized that capital funding tends to be highly variable, based on a capital improvement program that features substantial funding in disjointed intervals. The Voluntary Support of Education (VSE) database does collect *total outright giving for capital purposes,* and the state does fund such projects so additional exploration of a relationship between the variable is valuable.

Since the entire population of Maryland four-year public institutions was being tested, the homogeneity of the group was not a likely consideration. The *F* test of the R^2 change indicated statistical significance with a level of significance of $\alpha = 0.05$, a

reasonable level given the analysis among 13 institutions. As the analyses consider statistical significance it is also important to draw attention to meaningful relationships between variables that may not be significant yet should be noted.

Data Collection

The population of this study is the four year, public institutions in Maryland (*N*=13). This includes the eleven institutions within the University System of Maryland, Morgan State University, and St. Mary's College (see Appendix A for the inventory of public universities). The broad institution-type based on the Carnegie Classifications was used as a categorical variable to group institutions by similar traits. The entire population (*N*=13) was included in the data analysis. The research recognized the unit of analysis as the institution, and the period of study was ten years, Fiscal Year (FY) 1997 to FY2006.

From the databases listed below, the necessary data was collected. Variables have been defined in a previous section of this chapter. Appendix B contains a variables schematic by research question that identifies those variables tested.

Databases

The study will examine fundraising patterns of Maryland's public four-year institutions (see Appendix A) and how this relates to changes in state funding of operations and capital projects, revenue sources, expenditures, and fund reserves in the succeeding year. Use of a single state with state higher education policy coordinated through a single commission controlled for policy variation that may occur among different states. The intent was to understand the total private giving, a combination of restricted and unrestricted giving, along with total institutional endowments.

Legislative activities were researched using the Maryland Department of Legislative Services (MDLS), Office of Information Systems database. Ten years of retrospective data were collected from each institution using MHEC standardized annual financial reports by institution, the Council for Aid to Education (CAE) database, the National Association of College and University Business Officers' (NACUBO) endowment study database, and the Grapevine Survey of Higher Education Appropriations. The opportunity to search audited financial statements of institutions and IRS Form 990s, the basis for much of MHEC, CAE, and NACUBO data, was beneficial to complete the data set for this study.

Maryland Department of Legislative Services, Office of Information Systems

The Maryland Department of Legislative Services, Office of Information Systems public database on legislation, state budgets, and commission, task force, study group, and interim reports for the period FY1997 though FY2006 were used as a primary source to define state program legislation and budget data. This source provided legislative initiatives that affect higher education operations that are included in general operating fund, such as the private donation incentive program, the Historical Black Colleges and Universities Enhancement Funds, Information Technology Investments Funds, and Access and Success Funds (MHEC, 2008). The Access and Success funding was initially restricted and then changed to unrestricted and included in general operating funding.

Maryland Higher Education Commission Data Book

The annual Maryland Higher Education Commission's *Data Book* provided the institutional revenue and expenditure data. This was a comprehensive public source of enrollment, production, and financial data provided annually by each institution in a

standardized format. The *Data Book* contains full-time equivalent (FTE) student counts by institution, unrestricted revenues by institution, total unrestricted expenditures, and capital budget authorizations. In addition, the Peer Performance Analysis data collected since 2000 was available to extract performance indicator results.

Voluntary Support of Education Survey

The Voluntary Support of Education Survey has become a large-scale annual research program conducted by the Council for Aid to Education (CAE). The CAE is a national nonprofit organization established in 1952 to advance corporate support of education and to conduct policy research on higher education (Council for Aid to Education [CAE], 2007). CAE was an affiliate of the RAND Corporation from 1996 to 2005, becoming independent in 2006 while continuing to work closely with RAND since that time.

The Voluntary Support of Education Survey (VSE) had 1,014 college and university participants in 2006, featuring a core group of 921 that participate in sequential years of reporting (CAE, 2007). CAE (2007) estimated that 85% of the total voluntary support to colleges and universities is reported in the survey. The survey results are particularly useful for data on gifts and grants for both current and capital programs, gifts and grants of affiliated foundations, enrollment and expenditure data. Using the CAE's subscription higher education survey database and data miner, that is based on publically available data from the Maryland institutions through the Voluntary Support of Education Program, institutional data is available for the ten year period (CAE, 2007).

The VSE was a source of *unrestricted gifts for current operations*, *restricted gifts for current operations*, *total outright giving for current operations* (unrestricted plus

restricted gifts), *total outright giving for capital purposes*, and the present value of *deferred giving*. The present value is the tax deduction to the donor allowed by the Internal Revenue Service (CAE, 2007). This data is available on an annual basis.

NACUBO Endowment Study

The National Association of College and University Business Officers (NACUBO) Endowment Study is a more limited database in the context of this research. The survey focus is primarily on endowment giving, investment policies, asset allocation, and spending polices (NACUBO, 2008). With 785 institutions reporting, it served as an added focus on aspects of endowment. It is noteworthy that in several years of data collection, reporting of endowment for the USM has been consolidated. USM institutions have the ability to utilize the USM Foundation for endowment management. In such cases, the reported results are not provided by each institution. Institutional related foundations are considered a component unit of the institution and giving to the foundation will be included as private giving to the institution. The NACUBO Endowment Study, a subscription services based on public data from the Maryland institutions, provided the annual reported *spending rate* of institutional endowments, the *endowment spending rules* for each institution, and *total endowment assets* (NACUBO, 2008).

Grapevine

The Grapevine Survey of Higher Education Appropriations is an annual public reporting of data on state tax appropriations for the general operations of higher education maintained through the Center for the Study of Education Policy at Illinois State University (Palmer, 2008). Data from the Grapevine database enabled the change in

state funding to the Maryland institutions to be tracked in terms of total state funding per capita. The data available through the Grapevine addressed the change in population and state funding that has occurred over time. The Grapevine database gathers its data from state financial reports through MHEC, the Maryland Department of Budget and Management, and the Governor's Office (Palmer).

Integrated Postsecondary Education System (IPEDS)

The Integrated Postsecondary Education System (IPEDS) was available as a source of data for potential gaps that may occur in the databases available from the above mention sources. Specifically, IPEDS will provide primarily tuition and fees, federal operating grants, state appropriations, and gifts.

Other Sources for Comparable Data

In the event of missing data elements, the annual audited financial statements and IRS Form 990s were sought to capture the data. The financial statements are the basis for much of the data contained in the databases listed. There is recognition that in using multiple databases that theoretically capture the same information in a given year or institution, that data may not be consistently reported. Variation can occur due to the time of report, different individuals undertaking the reporting, and subtle nuances in the definitions of the data being collected. Survey responses from each institution for all years may not be available. The redundancy of some data among these sources may help minimize this problem while ensuring comparative data among the databases, given the consistent financial standards for reporting data.

The financial and institutional data are generally standardized. Most institutions follow the NACUBO *Financial Accounting and Reporting Manual for Higher Education*

(Goldstein & Budack, 2007). This is a comprehensive accounting guide available for higher education issues, providing detailed coverage of accounting trends and developments from the American Institute of Certified Public Accountants (AICPA), Financial Accounting Standards Board (FASB), and Government Accounting Standards Board (GASB). This guide helps ensure standardized treatment of financial data among institutions.

Data Preparation and Handling

Data were gathered electronically through report writer functions and by hard copy of available reports. Data were recorded for each institution into MS Excel to build a comprehensive flat file to extract variable data into SPSS. The SPSS analyses included descriptive statistics, correlation, regression, scatterplots, and histograms to clarify the statuses and trends over the 10 year period among the institutions. Recorded data were based on two types of financial data, budgeted figures and year end financial reports for the period being studied. The two types of financial data were not commingled in an analysis. Changes in revenue for institutions were also converted to percentages for analysis. Several ratios, including the endowment expenditure ratio and the state pseudo endowment, were computed as a percentage comparison to operating budgets. The pseudo endowment ratio treats state funding similarly to endowment spending. In this ratio, state funding was calculated as the result of the endowment assets necessary to sustain the funding with a standard endowment-like spending level. The financial data were based on standardized accounting principles.

Design Issues

There were design issues in this research in terms of delimitations and limitations of the study. Delimitations clarify the narrowing of scope in the research design. Limitations clarify potential weaknesses in the study design.

Delimitations of the Study Design

There were delimitations in this design narrowing the scope through the data and variables selected (Creswell, 2003). The design recognized that it was difficult to control for extraneous and intervening variables that may influence policy decisions of state officials. Economic influences, fiscal constraints, political interests, and other concerns play a role in the final state funding outcome for higher education. Analyzing and interpreting available data, particularly financial data, for relationships with state funding levels is extremely difficult to undertake. A single state, Maryland, was chosen to control for policies and funding decisions acting upon the institutions. The emphasis of this research is to ascertain if there are any significant relationships between private giving changes and state funding.

Limitations of the Research Design

There were limitations of this design in utilizing a nonexperimental design with nonrandom sampling. Hearn and Griswold (1994) and Hossler, Lund, Ramin, Westfall, and Irish (1997) showed the difficulty of using multiple regression and other bivariate techniques to explain relationships complicated by a host of interrelated political financial, social, bureaucratic, and economic factors (cited in Weerts & Ronca, 2006). There were limited numbers of institutions in the study with multiple independent variable indicators. Determinants of state funding were explained by many competing

variables tested among a limited number of institutions. The predictability of private giving for determining state funding needs to recognize limitations of multiple regression in this research. Fortunately, multiple regression was a useful technique for exploring the potential for providing an indication about the relationships among covariates, or independent variables identified in this chapter and state funding, the dependent variable (Weerts & Ronca).

Limitations clarify potential weaknesses in the proposed design. The analysis of private giving and state support in terms of the Carnegie classification may not have been as useful given the small number of institutions in the study and the variety of Carnegie classifications present in Maryland. Another limitation is that recognition that Government Accounting Standards Board (GASB) reporting requirements changed during the period being studied. These changes required all state and local governments, including public institutions of higher education to modify how finances are reported. Specifically, the distinction between unrestricted and restricted funds is no longer required. The revised state funding guidelines include total tuition and mandatory fee revenue and state general fund appropriations per FTE were made. According to MHEC, the change had little or no significant difference for the most institutions (MHEC Division of Finance Policy, 2003).

Further, including the University of Maryland University College (UMUC) may be problematic. This is not a typical four-year institution. UMUC features a large overseas operation in connection with the military and significant out-of-state on-line enrollment and a mission to serve part time adults through open admission. The review of

financial data indicated that funding relating to Maryland operations was available. The research design included this institution.

Human Subjects/IRB

This research utilized existing databases. There was no exposure to human subjects to risks requiring additional precautions. An application for exempt registration was made and approved by the Institutional Research Board since the proposal was of low risk to any human subjects.

Data Presentation for Chapters Four and Five

Chapter Four is the analysis of the data. This includes descriptive reports and statistical output results along with interpretation. The presentation will seek to follow the research questions in the presentation layout. Chapter V discusses the results, recommendations, and implications for future studies. Finally, a conclusion and statement on future research will be presented.

Chapter Summary

Chapter Three is the methodology section. The framework for this research design was based on approaching the problem of research and research questions from the perspective of a higher education leader using inductive and deductive inquiry (Creswell, 2003). From a methods perspective, this study will be quantitative, analyzing fundraising, operational and capital financial data, retrospectively, over 10 years. The research will control for legislative initiatives that directly affect fundraising, such as public funding private contribution match programs that may affect the relationship being analyzed. The study will examine fundraising outcomes of Maryland's public four-year institutions (see Appendix A) and how this relates to changes in state funding of operations and capital

projects, revenue sources, expenditures, and fund reserves in the succeeding year. The unit of analysis was the institution. The data was entered into SPSS for analysis. The paradigm of inquiry is from the postpositivist perspective. The intent has been to produce objective and understandable findings (Creswell, 2003). Based on the scientific method of empirical knowledge, this paradigm may help to substantiate anecdotal and attitudinal findings at least within one state. The theoretical framework for this proposed study uses Light's (2005) pillars of high performance. Studying the relationship between private fundraising and state funding within this framework will enable the literature review, research method, and data analysis to be undertaken in terms of positioning the institution to maximize funding from both sources in an effort to remain competitive.

Chapter IV

RESULTS OF THE STUDY

The purpose of this study was to examine the relationship between the change in the level of institutional fundraising and changes in state funding at Maryland public four-year institutions. In addition to differentiating types of private giving and the state's funding of institutional operations and capital projects, ranking indicators and state economic indicators were included to examine giving and funding relationships in the context of competitiveness and overall state fiscal environment. This study contained six research questions designed to address the research purpose in this proposal.

RQ1. What are the funding trends by institution of the past 10 years in terms of private giving, total state funding (operating and capital funding), endowment, and the state pseudo endowment level?

RQ2. What are the enrollment trends by institution of the past 10 years relative to the funding trends in RQ1 (private giving, total state funding, endowment, and the state pseudo endowment level)?

RQ3. Are there statistically significant relationships among total private giving, per capita state personal income, and institutional enrollment, and the total state general operating funding per FTE student?

RQ4. Are changes in total private giving significant predictors of changes in state capital and operating funding to the Maryland public four-year institution?

RQ5. Are total private giving, institutional wealth, and SAT scores statistically significant predictors of state funding?

RQ6. Are previous year state funding, the number of private gifts, and research expenditures statistically significant predictors of the pseudo endowment necessary to support state funding?

This chapter presents the results of the statistical analyses performed in examining the research questions. Each research question is a separate section with details of the analysis and summary.

Summary

This study presents the results based on 10 years of data from 13 Maryland public institutions along with state fiscal data for each year. The private giving data was extracted from The Voluntary Support of Education Survey (VSE) conducted by the Council for Aid to Education (CAE). This was a proprietary database available through subscription. The data extracted from VSE was not publically available and each institution was uniquely coded with a letter. The identification and classification of each institution is contained in Table C3 of the Appendix.

All 11 of the University System of Maryland (USM) schools have participated in this survey, although there were gaps over the 10 year period for certain variables in a few institutions. This study also included the two public institutions outside the USM. These institutions did not participate in VSE. Data was extracted from audited financial statements and Internal Revenue Service Form 990s in an effort to fill data gaps with comparable data. All Maryland four-year public institutions were included in this sample, although there were data gaps that remained among the institutions during this time period. The Maryland Higher Education Commission (MHEC) *Data Book* was a principal source of revenue, expenditure, and demographic data for each institution. This

annual collection of budget reports compiled from all Maryland institutions was complete and remained consistent over the time frame studied. There were two occurrences when the MHEC *Data Book* had data gaps and required retrieving data from MHEC's *Trendbook* and Department of Legislative Services budget reports. MHEC also provided annual reporting on the Private Donation Incentive Program activities by institution.

The NACUBO Endowment Study was a resource used on two occasions to resolve questions and fill data gaps. Generally, if an institution did not participate in VSE, it did not participate in the Endowment Study. The Department of Legislative Services served as a resource for all Maryland state budgets. The Maryland Department of Planning was a center for census data for the state.

RQ1 - Private Giving, State Funding, and Endowment Trends

Research question (RQ) 1 was designed to generate descriptive statistics in terms of the total funding trends for each institution over the 10 year period. Descriptive statistics were generated using the average of the 10 years of data reported for each variable of each of the 13 institutions. This research question analyzed Total Private Giving, Change in Total Private Giving, State Funding, Change in State Funding, Endowment, and State Pseudo Endowment. As part of the descriptive analysis, variables were graphed on proportionate scales for the 10 year period by the individual institutional level, by composite of all institutions, and Carnegie classifications.

There were limited data integrity issues identified as analyses were undertaken and initial output was interpreted. Annual audited financial statements and IRS form 990s were used to fill data gaps in direct private giving and endowment asset size. There were limitations in that the tax form did not differentiate types of giving. Where financial

statements were used, the administrator for the foundation was asked to validate the total endowment. These efforts ensured consistency among the data.

One institution made a prior period adjustment in their IRS 990 without explanation. This meant that restricted net assets were not reported consistently among consecutive years of IRS filings. An attempt to reconcile the difference with the institution's annual financial reports indicated an adjustment. The more recent IRS form was used in this instance. Some universities had unique features associated with their foundation that affect the value of assets. For example, one institution accepted donations of boats for a sailing program. These donations were recorded as tangible assets of the foundation. In this particular situation, the institution established a foundation specifically for the sailing program, which was not included in this research.

Descriptive Statistics

This section provides an overview of descriptive statistics based on the mean of 10 years of data from the 13 institutions. The analyses by individual institution by fiscal year was intended to help offset potential masking of data associated with the use of a 10 year average. The graphs and tables compare Total Private Giving w/o PDIP, State Funding w/o PDIP, the Change in Total Private Giving and Change in State Funding, and the Endowment Market Value and Endowment Expenditure Ratio (EER). Similar comparison graphs follow as a composite of all institutions by fiscal year and using a classification system based on the institution type. These analyses were provided in an effort to further understand the relationship and trends from a descriptive sense.

Total Private Giving

Table C1 (Appendix C) contains the descriptive statistics for Total Private Giving, including unrestricted, restricted, and capital, with and without the Private Donation Incentive Program (PDIP) contributions for each fiscal year. Recall that the PDIP was a state incentive program to encourage institutions to fundraise and required a certain level of eligible private giving to qualify for the state incentive funds. The table included the mean and median statistics of all the institutions in a given fiscal year. Table 4 provides the composite statistics of all 13 public institutions for the entire period, FY1997 to FY2006.

Table 4

Descriptive Statistics - Total Private Giving with and w/o Private Donation Incentive Program Contributions, and Change in State Funding w/o PDIP (FY1997 – FY2006)

	Total Private Giving	Total Private Giving w/o PDIP	Change in State Funding w/o PDIP
Mean ($)	10,244,066	9,954,708	1,934,671
Median ($)	3,031,591	2,741,955	950,002
SD	18,830,704	18,762,453	2,440,786
Minimum ($)	338,727	309,319	260,229
Maximum ($)	64,706,104	64,281,637	9,168,681

N = 13

The maximum Total Private Giving (Table C1 in Appendix) ranged from $84,044,504 in FY2005 to a minimum of $215,114 at a single institution in FY2006. This compared to an averaged institutional range from $64,706,104 to $338,727 (Table 4). The annual fiscal year mean for all institutions was $11,471,026, ranging from $6,581,599 in

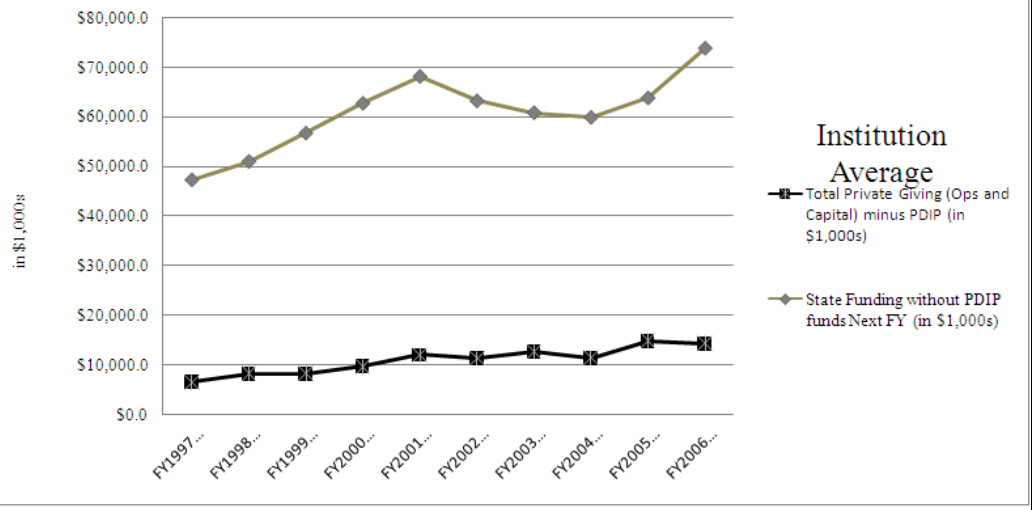
FY1997 to $14,895,728 in FY2005. The comparable mean based on the 13 cases was $10,244.066. The use of institutional means by fiscal year and average mean by fiscal year changed the lens through which private giving was examined. The range of giving levels was reflected with a high standard deviation, indicating large variability of private giving around the mean each fiscal year. Given the variation in size of each institution, further analysis of giving was made in terms of a per student unit of measure in RQ2.

A skewness ratio was also included to clarify the distribution of private giving each fiscal year. The median Total Private Giving figures contained in Table C1 (Appendix C) reported the skewness from 1.94 to a high of 2.64. The ratio indicated an asymmetric distribution, with many private giving totals for institutions at the lower end of the scale and progressively fewer totals toward the upper end. The median ranged from $1,047,312 in FY1997 to $4,563,758 in FY2005. Each year the median was lower than the mean. This indicated that a higher number of institutions had total private giving on the lower end of the scale and a small number of institutions had very large total private giving amounts during the period.

Total Private Giving and State Funding by Institution

The data visually provided evidence (Figure 2) of a decline corresponding to the downturn in the regional economy beginning in FY2001. Figure 2 demonstrated a consistent pattern among institutions that state funding returned, or exceeded, its previous highest levels within five years of the start of the decline. Upward movements, with some moderating declines, occurred among the institutions with private giving during the 10 years with the giving more than doubling during this period. The state funding average among the institutions did not experience a similar growth rate, although both

variables gained in six of the 10 years reported. Recall that the graph of State Funding w/o PDIP (funds Next FY) represented the funding in the next fiscal year. This related to the perceived lag in funding decisions that were thought to occur that would have considered the implications of fundraising outcomes by institutions.

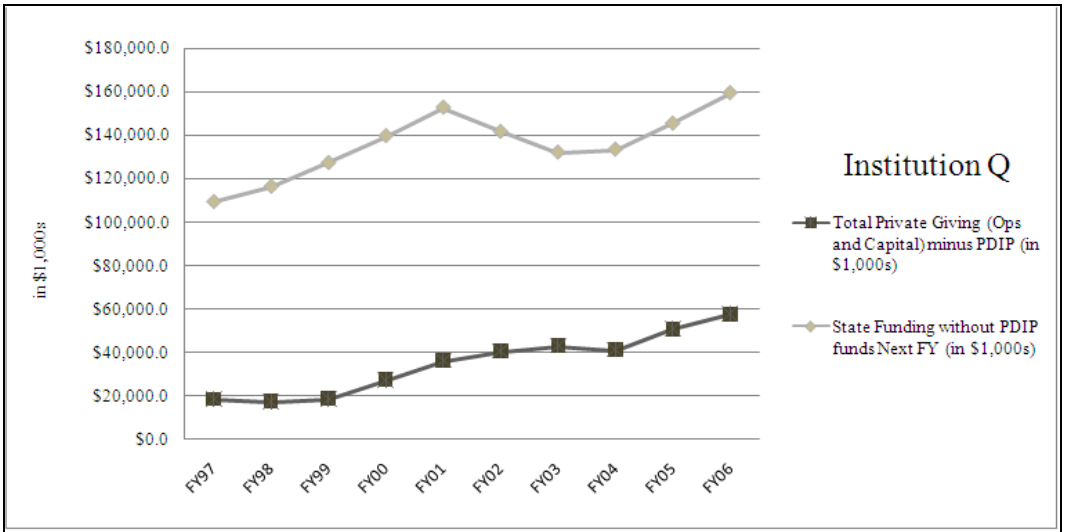


Institution Average	FY	Total Private Giving (Ops and Capital) minus PDIP (in $1,000s)	State Funding without PDIP funds Next FY (in $1,000s)
	FY1997 Average	$6,581.6	$47,363.8
	FY1998 Average	$8,292.8	$51,073.1
	FY1999 Average	$8,298.4	$56,811.5
	FY2000 Average	$9,766.5	$62,851.2
	FY2001 Average	$12,093.6	$68,317.7
	FY2002 Average	$11,380.6	$63,360.7
	FY2003 Average	$12,660.4	$60,946.3
	FY2004 Average	$11,472.5	$60,007.1
	FY2005 Average	$14,884.2	$63,950.4
	FY2006 Average	$14,368.1	$74,023.6

Figure 2. Total Private Giving and State Funding Institutional Averages

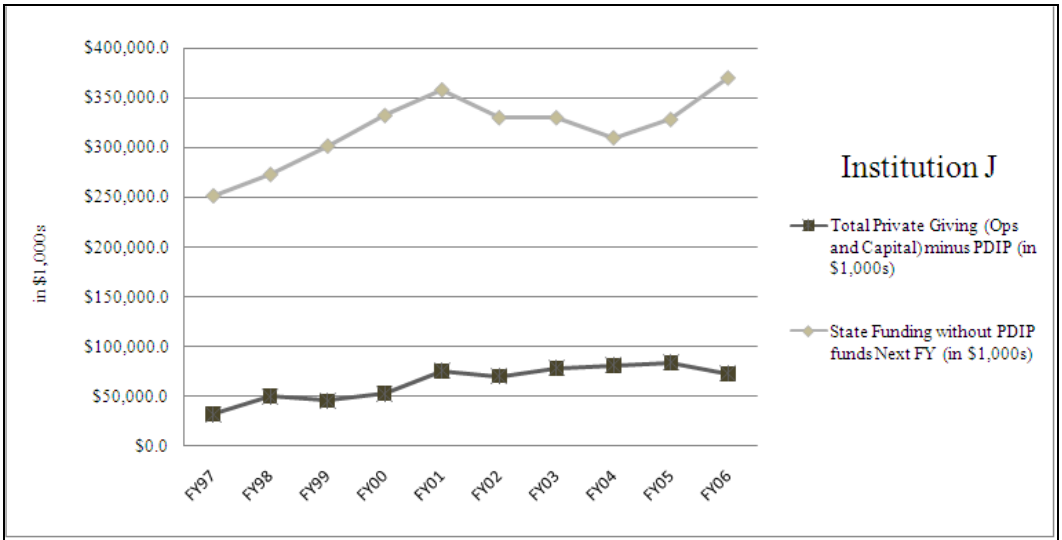
Examining specific institutional output, UMB (Figure 3) represented a special focus research institution with graduate programs. Total Private Giving w/o PDIP maintained a stable trajectory, with two years of slight reductions, allowing the institution to practically triple annual private giving contributions. The flow of state funding within

the special focus institution followed the overall mean among all the institutions (Figure 2), decreasing the appearance of a relationship between the two trendlines in Figure 3.



Institution Q	FY	Total Private Giving (Ops and Capital) minus PDIP (in $1,000s)	State Funding without PDIP funds Next FY (in $1,000s)
	FY97	$18,546.0	$109,386.8
	FY98	$17,382.0	$116,411.9
	FY99	$18,719.4	$127,343.9
	FY00	$27,383.6	$139,749.2
	FY01	$36,283.9	$152,831.6
	FY02	$40,622.2	$141,678.4
	FY03	$43,114.2	$132,174.8
	FY04	$41,264.8	$133,497.6
	FY05	$50,922.6	$145,486.5
	FY06	$57,782.2	$159,520.1

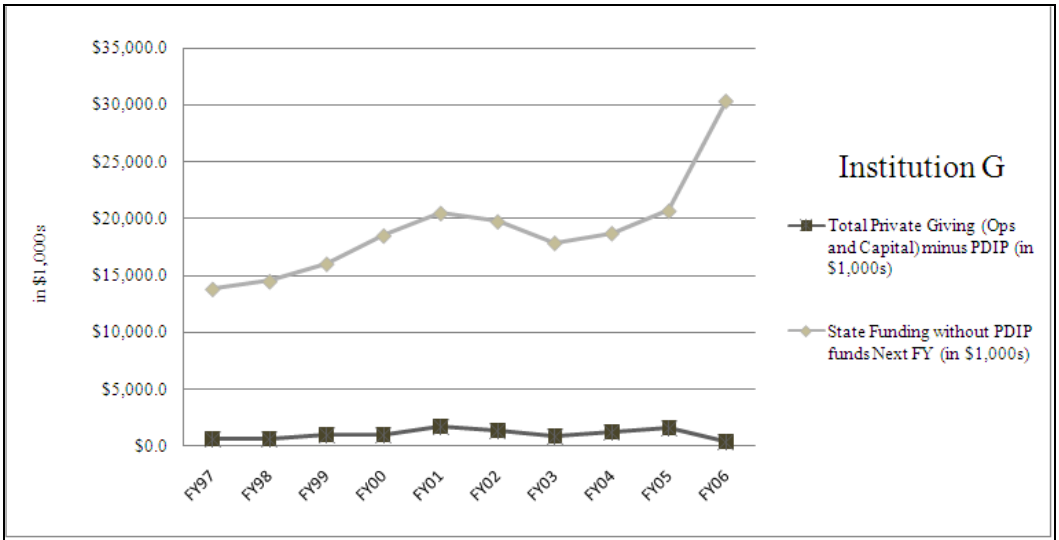
Figure 3. Total Private Giving and State Funding (UMB, Special Focus, Research)



Institution J	FY	Total Private Giving (Ops and Capital) minus PDIP (in $1,000s)	State Funding without PDIP funds Next FY (in $1,000s)
	FY97	$32,113.5	$251,781.8
	FY98	$50,146.7	$273,232.1
	FY99	$45,779.9	$301,984.1
	FY00	$53,178.4	$332,775.4
	FY01	$75,243.7	$358,572.2
	FY02	$70,643.6	$330,499.3
	FY03	$78,044.8	$330,499.3
	FY04	$80,995.1	$310,281.8
	FY05	$84,044.5	$328,769.9
	FY06	$72,626.1	$370,652.5

Figure 4. Total Private Giving and State Funding (UMCP, Research, Flagship)

Figure 4, UMCP, featured the largest changes in terms of absolute dollars in State Funding. The largest decrease was exhibited in FY2002 with a reduction of $28.8 million. The largest increase was in FY2006, at $41.8 million. Although these were the greatest total changes in terms of dollars, the State Funding trendline was very similar to the same trendline among the institutional averages (Figure 2), indicating a level of proportionality among the institutions during this period of study. Total Private Giving followed a pattern to more than double annual contributions in 10 years with a pattern that reflected the economic pressure of the time as demonstrated in state funding.

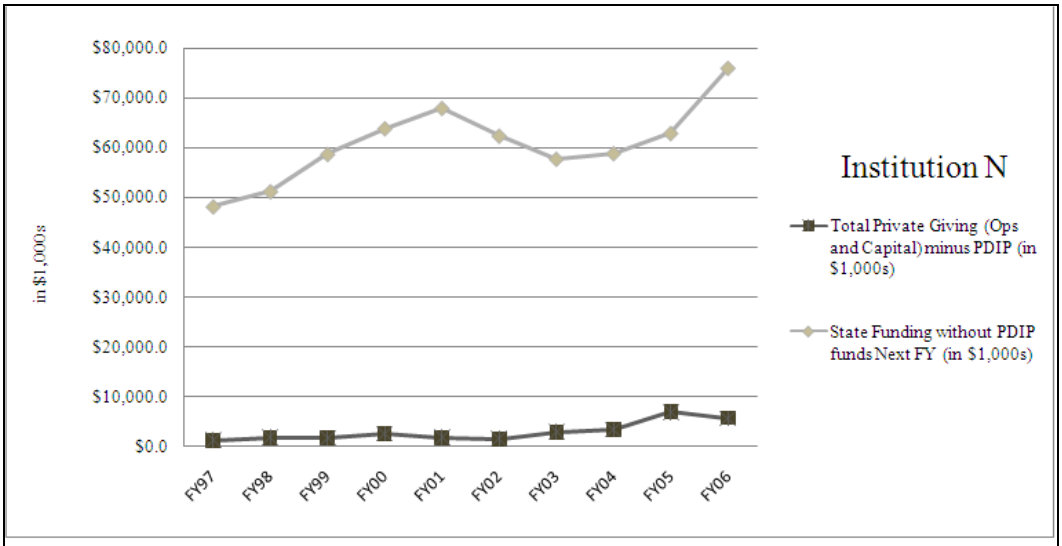


Institution G	FY	Total Private Giving (Ops and Capital) minus PDIP (in $1,000s)	State Funding without PDIP funds Next FY (in $1,000s)
	FY97	$614.8	$13,832.2
	FY98	$648.3	$14,504.2
	FY99	$996.6	$16,038.3
	FY00	$975.5	$18,515.1
	FY01	$1,749.5	$20,494.2
	FY02	$1,345.9	$19,755.3
	FY03	$861.7	$17,874.9
	FY04	$1,256.6	$18,725.1
	FY05	$1,586.6	$20,689.2
	FY06	$388.4	$30,329.6

Figure 5. Total Private Giving and State Funding (CSU, Masters, HBI)

Figures 5, C1, and C2 in the Appendix featured rather steep slopes in the state funding line from FY2005 to FY2006 for three masters, HBIs in Maryland (CSU, BSU, UMES). The remaining HBI (MSU), a doctoral institution, did not appear to have as steep a slope for the same period although it was a greater change than many institutions (Figure C3). Each of the three institutions, where reported, had rather sporadic flows of Total Private Giving year to year. Each had lower Total Private Giving at the end of the period than at the beginning. The doctoral HBI did report an increase of approximately 60% in annual Total Private Giving during the period. These variables were explored

further in terms of FTE Student in the next section (see Figures 29 – 32) of this chapter and this analysis helped explain the demonstrated growth.

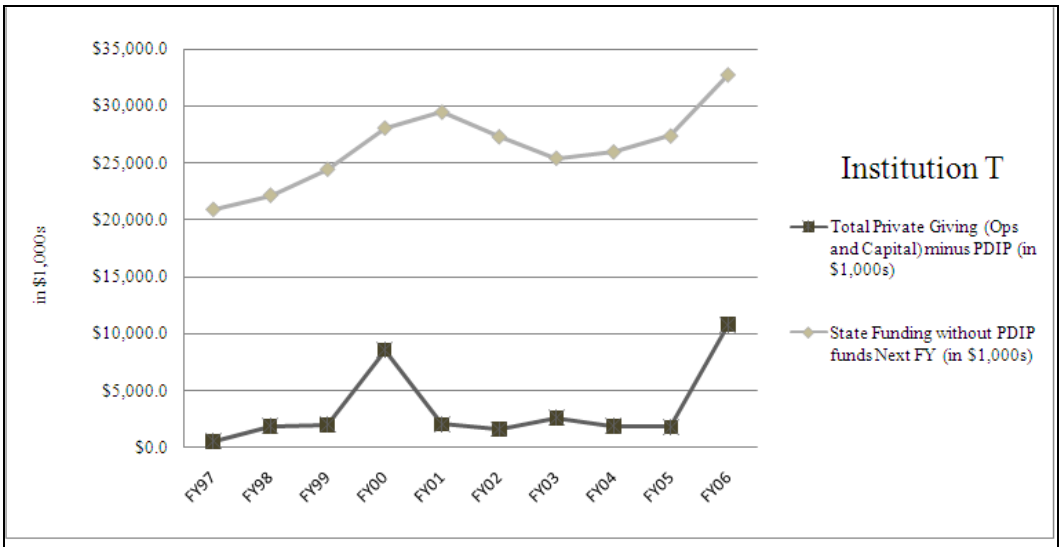


Institution N	FY	Total Private Giving (Ops and Capital) minus PDIP (in $1,000s)	State Funding without PDIP funds Next FY (in $1,000s)
	FY97	$1,251.2	$48,267.8
	FY98	$1,841.5	$51,297.3
	FY99	$1,756.7	$58,797.5
	FY00	$2,526.8	$63,947.8
	FY01	$1,898.5	$68,021.3
	FY02	$1,637.0	$62,464.0
	FY03	$2,969.9	$57,824.0
	FY04	$3,485.7	$58,945.9
	FY05	$7,018.5	$62,994.4
	FY06	$5,749.1	$76,054.2

Figure 6. Total Private Giving and State Funding (TU, Masters)

Figure 6 exhibited a doubling of private funding in a single year that had implications for raising Total Private Giving to a higher level for several years. This was due in part to a pledged $10.2 million to rename the University's College of Science and Mathematics. A total of $4.2 million was received at the signing of the pledge which was included in the FY2005 figure. The $6 million balance was paid in $2,000,000 installments, one such installment was included in FY2006 (Walpert & Wolpoff, 2005,

Aug 19). Based on initial research, there would be a tendency to suggest that such a substantial donation that received media attention would raise awareness among state policy makers of successful giving and could potentially affect future funding. Yet, examining the descriptive statistics did not suggest a relationship, especially an inverse relationship.

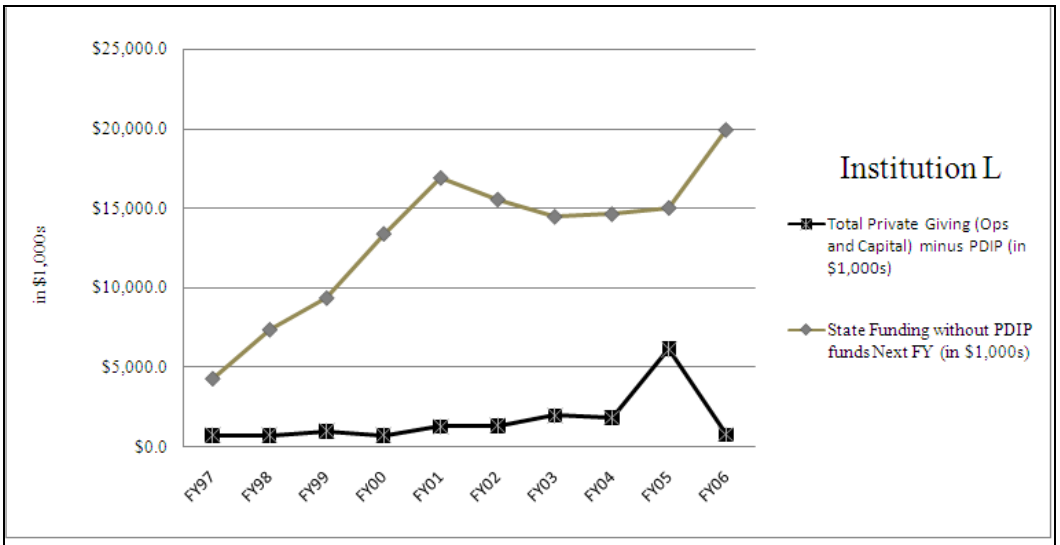


Institution T	FY	Total Private Giving (Ops and Capital) minus PDIP (in $1,000s)	State Funding without PDIP funds Next FY (in $1,000s)
	FY97	$554.8	$20,939.7
	FY98	$1,904.2	$22,178.9
	FY99	$2,041.9	$24,476.8
	FY00	$8,602.7	$28,100.1
	FY01	$2,079.7	$29,499.7
	FY02	$1,639.2	$27,324.6
	FY03	$2,664.8	$25,442.4
	FY04	$1,936.2	$25,995.1
	FY05	$1,834.9	$27,403.0
	FY06	$10,852.0	$32,774.7

Figure 7. Total Private Giving and State Funding (SU, Masters)

The quadrupling of private giving at SU (Figure 7) during FY2000 was highlighted. The university foundation received the largest single gift by an individual donor up to that point, $5.3 million to benefit nursing and allied health programs taught at

the institution. Most of the gift, $4.8 million, was restricted for a scholarship program for students with financial need wishing to pursue a health related field (Salisbury University Foundation, 2006). Once again, there was no indication of a relationship between successful private giving and state funding in this case.



Institution L	FY	Total Private Giving (Ops and Capital) minus PDIP (in $1,000s)	State Funding without PDIP funds Next FY (in $1,000s)
	FY97	$743.7	$4,300.1
	FY98	$761.7	$7,373.6
	FY99	$1,004.1	$9,362.9
	FY00	$757.9	$13,397.4
	FY01	$1,304.3	$16,908.3
	FY02	$1,379.8	$15,552.2
	FY03	$1,998.0	$14,469.5
	FY04	$1,852.6	$14,633.3
	FY05	$6,168.5	$15,027.0
	FY06	$795.4	$19,919.2

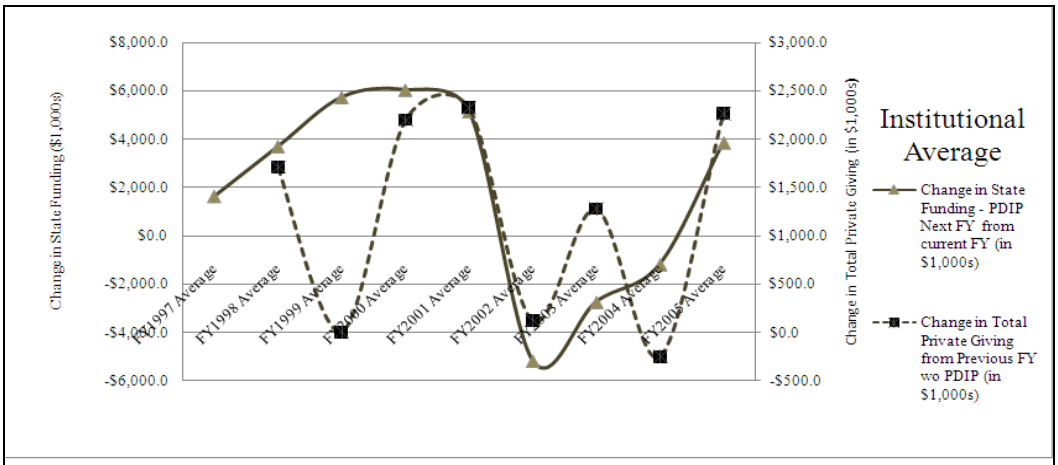
Figure 8. Total Private Giving and State Funding (UMUC, Masters)

Figure 8 represented UMUC, the open admission institution with a significant presence on-line and at overseas military installations. This university did expand institutional fundraising efforts during the period, and there was also a significant increase in State Funding during the first part of this period. This increase in funding

occurred as the institutional enrollment for state residents grew substantially. The appendix includes the remaining institutions in Figures C4 – C7.

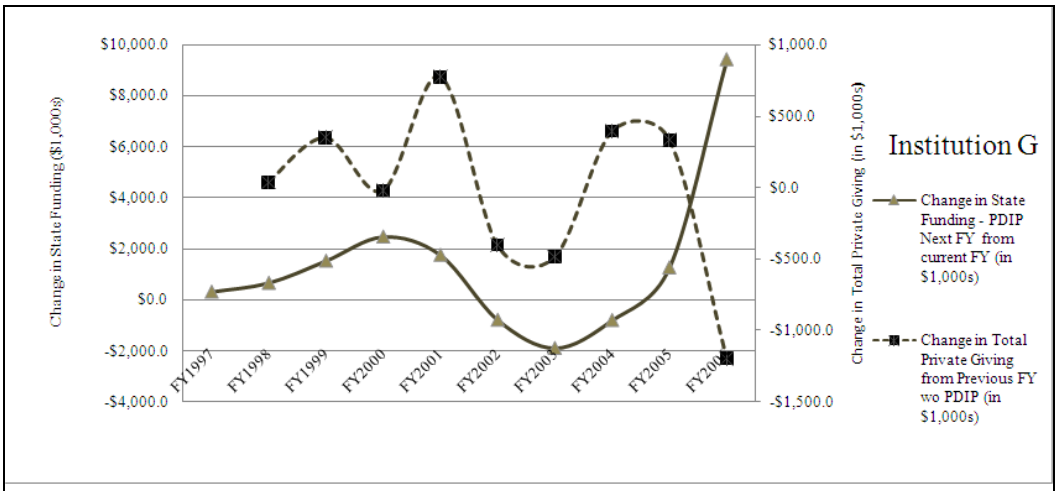
Rate of Changes in Total Private Giving and State Funding by Institution

Examining the rates of change in both variables revealed a more sporadic change in private giving. As the figures in this section are reviewed, it is important to emphasize that the graphs demonstrate the rates of change for each variable. In this analysis, the change in a variable may be increasing, but the analysis was focused on the rate at which the change occurred. Therefore, while the change in funding may increase, the rate of change may decrease. The rates of Change in State Funding tended to be less variable, not as subjected to the number and intensity of annual fluctuations as the Change in Total Private Giving, although there was a substantial decline.



Institutional Average	FY	Change in Total Private Giving from Previous FY wo PDIP (in $1,000s)	Change in State Funding - PDIP Next FY from current FY (in $1,000s)
	FY1997 Average		$1,650.0
	FY1998 Average	$1,711.2	$3,709.3
	FY1999 Average	$5.6	$5,738.4
	FY2000 Average	$2,197.3	$6,039.7
	FY2001 Average	$2,327.0	$5,153.5
	FY2002 Average	$121.5	-$5,164.5
	FY2003 Average	$1,279.8	-$2,735.1
	FY2004 Average	-$251.0	-$1,177.3
	FY2005 Average	$2,266.8	$3,864.0
	FY2006 Average	-$516.0	$9,828.7

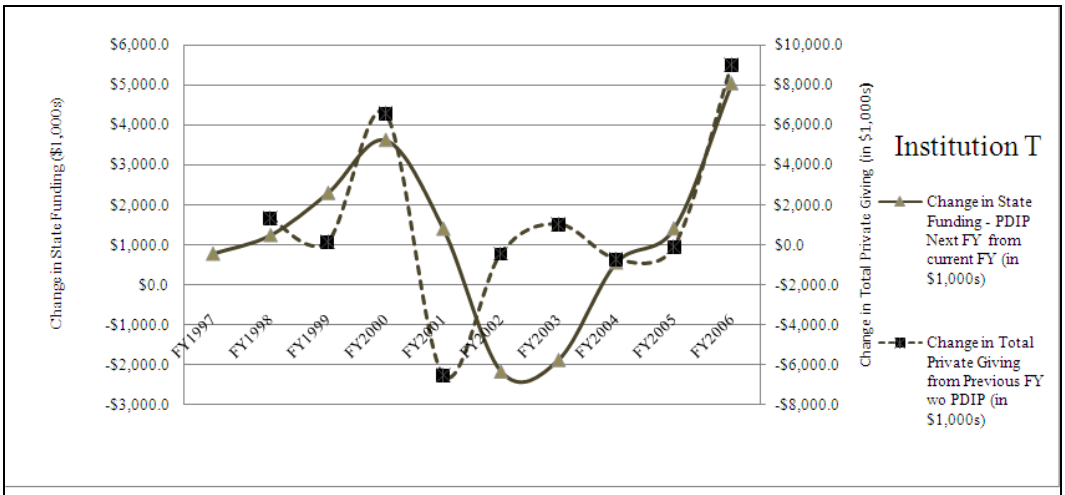
Figure 9. Rate of Change in Total Private Giving and Change in State Funding (Institution Average)



Institution G	FY	Change in Total Private Giving from Previous FY wo PDIP (in $1,000s)	Change in State Funding - PDIP Next FY from current FY (in $1,000s)
	FY1997		$322.7
	FY1998	$33.5	$672.0
	FY1999	$348.3	$1,534.1
	FY2000	-$21.2	$2,476.8
	FY2001	$774.0	$1,763.4
	FY2002	-$403.6	-$776.7
	FY2003	-$484.2	-$1,880.5
	FY2004	$394.9	-$787.2
	FY2005	$330.0	$1,277.6
	FY2006	-$1,198.2	$9,414.4

Figure 10. Rate of Change in Total Private Giving and Change in State Funding (CSU, Masters, HBI)

Figure 10 displayed an oscillating pattern for the rate of Change in Total Private Giving w/o PDIP with an overall negative slope for CSU. The rate of Change in State Funding followed the institutional average; however, the final year reported of state funding indicated a substantial positive change in state funding. This rate of change was consistent among the HBIs as demonstrated in Figures C8 (Appendix), C10, and C16.



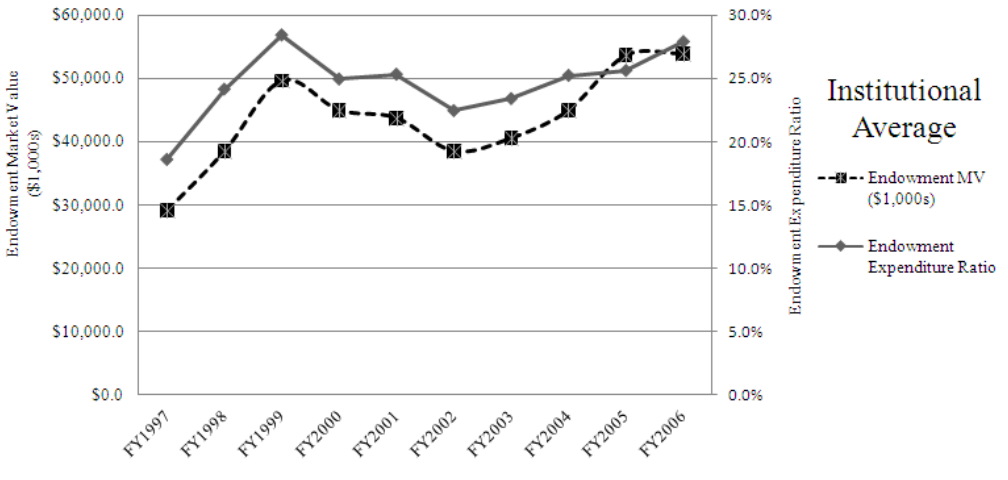
Institution T	FY	Change in Total Private Giving from Previous FY wo PDIP (in $1,000s)	Change in State Funding - PDIP Next FY from current FY (in $1,000s)
	FY1997		$775.9
	FY1998	$1,349.4	$1,239.2
	FY1999	$137.7	$2,298.0
	FY2000	$6,560.8	$3,623.3
	FY2001	-$6,522.9	$1,399.6
	FY2002	-$440.5	-$2,175.1
	FY2003	$1,025.6	-$1,882.2
	FY2004	-$728.6	$552.7
	FY2005	-$101.3	$1,408.0
	FY2006	$9,017.1	$5,036.8

Figure 11. Rate of Change in Total Private Giving and Change in State Funding (SU, Masters)

Figures 11 and C9 indicated two institutions where the rates of Change in Total Private Giving were approximating similar rates of Change in State Funding. The Change in Private Giving appeared to be foreshadowing future state funding. From the pinnacle in the Change in State Funding, both indicators saw a major decrease in the data reported for FY2002. With different rates of change from the institutional averages in FY2003 and FY2004, both variables ended with similar proportionate changes in FY2005 data reporting. After that point, the rate of Change in State Funding continued to grow while Total Private Giving saw a decline.

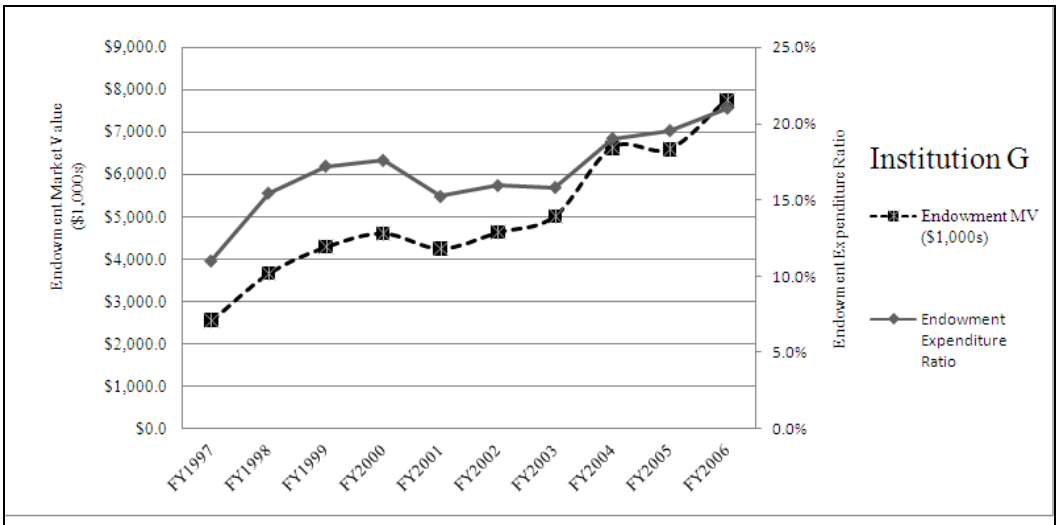
Endowment Market Value and the Endowment Expenditure Ratio

Figure 12, the Institutional Average, indicated that the change in endowment market value was parallel to the change in the endowment expenditure ratio (EER) for much of the decade. During the last year of the period the endowment market value flattened, growing at 0.5%, while the budgeted expenditures for the institutions contracted during FY2005 with some large increases in endowment market values occurring in FY2006 and expenditures began to increase. The pseudo endowment, while not graphed, followed a similar pattern as the EER in most years shown below.



Institutional Average	FY	Endowment MV ($1,000s)	Pseudo State Endowment ($1,000s)	Endowment Expenditure Ratio
	FY1997	$29,121.5	$914,278	18.6%
	FY1998	$38,469.7	$947,277	24.1%
	FY1999	$49,585.2	$1,021,462	28.4%
	FY2000	$44,930.7	$1,136,230	24.9%
	FY2001	$43,709.2	$1,260,153	25.3%
	FY2002	$38,477.6	$1,368,429	22.5%
	FY2003	$40,523.4	$1,270,420	23.4%
	FY2004	$44,877.3	$1,221,307	25.2%
	FY2005	$53,560.1	$1,200,935	25.6%
	FY2006	$53,852.6	$1,281,453	27.9%

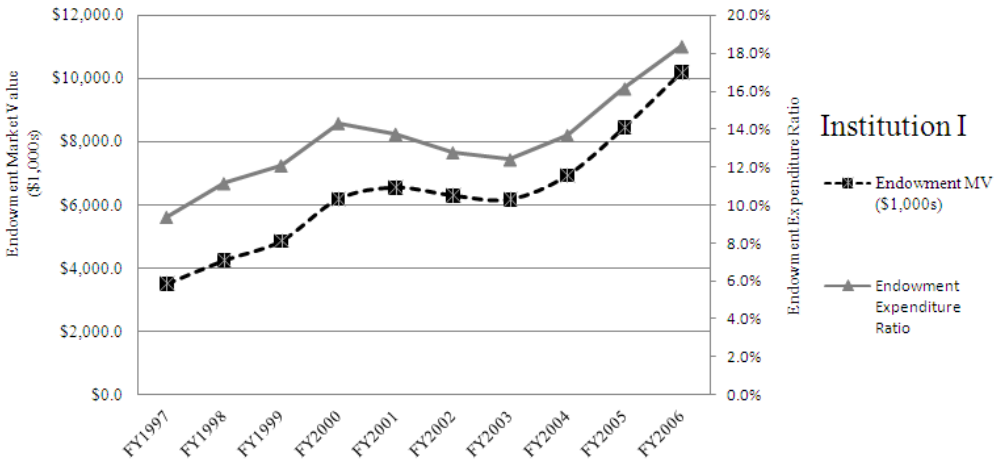
Figure 12. Endowment Market Value and Endowment Expenditure Ratio (Institutional Average)



Institution G	FY	Endowment MV ($1,000s)	Pseudo State Endowment ($1,000s)	Endowment Expenditure Ratio
	FY1997	$2,549.1	$270,190	11.0%
	FY1998	$3,664.5	$276,644	15.5%
	FY1999	$4,291.6	$290,084	17.2%
	FY2000	$4,611.3	$320,766	17.6%
	FY2001	$4,256.3	$372,460	15.2%
	FY2002	$4,634.1	$410,263	16.0%
	FY2003	$5,020.3	$395,107	15.8%
	FY2004	$6,635.2	$373,871	19.0%
	FY2005	$6,595.2	$381,366	19.5%
	FY2006	$7,762.3	$416,044	21.0%

Figure 13. Endowment Market Value and Endowment Expenditure Ratio (CSU, Masters, HBI)

CSU (Figure 13) provided an indication of an Endowment Market Value that grew at a rate faster than budgeted expenditures. Keeping in mind that endowment growth was a combination of increased private giving and increased market value of assets, this total figure was increasing at a faster rate than the EER during FY2004 and FY2006. With endowment the numerator in the EER, the ratio increases at a greater rate as the growth of endowment is greater than the budgeted expenditures.

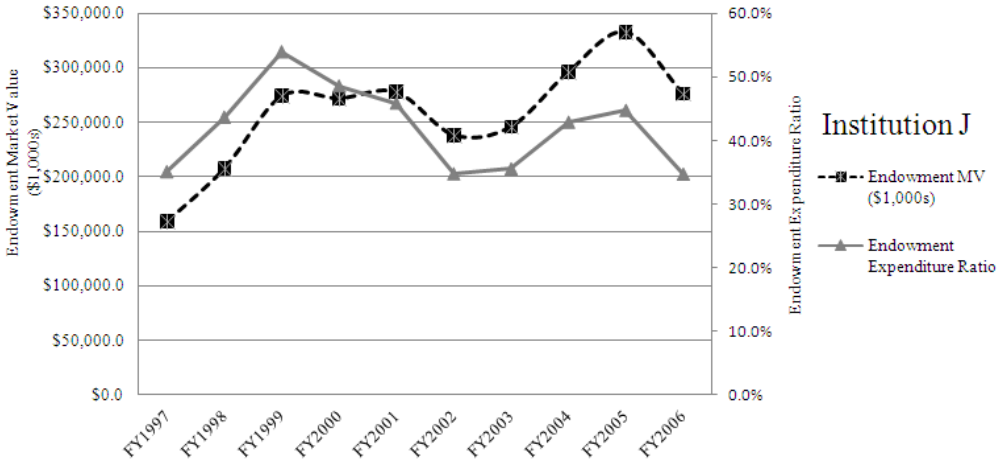


Institution I	FY	Endowment MV ($1,000s)	Pseudo State Endowment ($1,000s)	Endowment Expenditure Ratio
	FY1997	$3,522.0	$393,442	9.4%
	FY1998	$4,262.5	$411,171	11.2%
	FY1999	$4,879.1	$437,672	12.1%
	FY2000	$6,201.7	$486,108	14.3%
	FY2001	$6,565.5	$531,372	13.8%
	FY2002	$6,313.4	$573,194	12.8%
	FY2003	$6,191.9	$526,049	12.4%
	FY2004	$6,943.4	$488,177	13.7%
	FY2005	$8,466.5	$496,771	16.1%
	FY2006	$10,201.3	$528,689	18.4%

Figure 14. Endowment Market Value and Endowment Expenditure Ratio (FSU, Masters)

FSU (Figure 14) demonstrated a university where the change in Endowment Market Value was similar to the rate of change in the Endowment Expenditure Ratio. The change in market value was at a greater rate than the change in budgeted expenditures, except during the period of FY2001 to FY2003. If the trendline were to continue along a similar pattern into the future, the EER line would cross over the Endowment MV line. This would indicate the change in market value was greater than the change in expenditures. Further, assuming market value was continuing to increase, albeit at a rate smaller than the EER, the budgeted expenditures would be declining to enable a greater rate of change of the EER. Such a relationship could indicate a major

increase in private giving, perhaps a transformational gift. Conversely, this could be an indication of concern for operational sustainability as expenditures decline faster than Endowment Market Value.



Institution J	FY	Endowment MV ($1,000s)	Pseudo State Endowment ($1,000s)	Endowment Expenditure Ratio
	FY1997	$158,914.0	$4,880,967	35.2%
	FY1998	$207,693.0	$5,035,636	43.7%
	FY1999	$273,782.0	$5,464,642	54.0%
	FY2000	$271,703.0	$6,039,683	48.6%
	FY2001	$277,455.0	$6,662,208	45.9%
	FY2002	$238,098.4	$7,186,780	34.8%
	FY2003	$245,762.3	$6,609,986	35.6%
	FY2004	$295,816.4	$6,609,986	42.9%
	FY2005	$332,483.2	$6,205,636	44.8%
	FY2006	$275,992.5	$6,576,190	34.8%

Figure 15. Endowment Market Value and Endowment Expenditure Ratio (UMCP, Research, Flagship)

The flagship institution displayed the growth of endowment that exceeded the growth in EER (Figure 15). At the point the growth rate surpassed the EER, the change in endowment followed a path similar to the change in EER during the remaining fiscal years of the period studied. The indication was that the budgeted expenditures for the institution maintained a relatively proportionate change to that of endowment.

Collectively, the period analyzed ended with an EER of 27.9% for all institutions and a Pseudo State Endowment (PSE) of $1.28 billion (Figure 12). Both wealth indicators had ranges from the FY2006 EER of 34.89% with a PSE of $6.58 billion for USM the flagship institution (Figure 15), to 17.5% EER and PSE of $1.04 billion for the HBI doctoral institution, MSU (Figure C17). The baccalaureate institution, SMC, with unique funding parameters from the state had an EER of 47.4% and a PSE of $291.9 million (Figure C15).

Public Policy Implications for Funding

There are public policies that may help explain some of the funding differences among the institutions. St. Mary's College (SMC), the baccalaureate college identified as Maryland's honor college, is autonomous from the USM, with a board granted authority to prepare and implement its own operating and capital budget (Education Article, 2009). State funding is codified through a grant to the college with an offset for inflation. State law recognized the need for SMC to support its operations from other revenue sources; hence the institution demonstrated a rather low PSE among Maryland institutions and a high EER.

As mentioned in Chapter 2, state funding guidelines were developed at the direction of the state legislature in 1999. The state espoused a funding goal that all four year public institutions will be funded at 100% of MHEC's funding guidelines (Education Article, 2009). Prior to this, the state legislature approved a policy of funding higher education at 15.5% of the state's General Fund revenues (Education Article). The guidelines, which would apply to USM and MSU, based funding on 75th percentile of revenues per FTE student of peer and aspirational institutions. After subtracting tuition

and fee revenues, the state appropriation was intended to bring the institution to the 75th percentile of the comparator institutions. The state had difficulty meeting this goal, particularly with the economic conditions existing during a portion of this period studied. A review of the descriptive statistics and charts does not provide apparent evidence of changes in state funding patterns, particularly as it relates to changes in the funding guidelines.

Further review of Morgan, an HBI doctoral institution that is also an independent state institution, indicated a level of state support below the average of all institutions in FY2006 with a PSE of $1.04 billion. The EER, also 17.5%, lagged the institutions' average of 27.9%. Conversely, the flagship, UMCP, had an EER almost double MSU's at 34.89% and a PSE of $6.58 billion. Theoretically, state assets of five times the level of the average of all institutions support UMCP.

Annual Mean of Total Private Giving for All Institutions

Figure 16 provided a representation of the annual mean over the 10 year period derived from Table C1 and demonstrating increased private giving over time. This analytical approach looked at the institutions collectively in terms of an annual mean for comparison of state funding and private giving. The concept of this approach was based on comparing the aggregate mean among all institutions for each fiscal year for Maryland's four year public institutions along with a comparison of the aggregate means of change in state funding for each year. This provided a macro view of the institutional trends in both private giving and state funding changes.

Private giving tended to plateau during the period FY2001 to FY2004, which corresponded to an economic slowdown when Maryland's revenues were constrained and

tuitions were increased at Maryland's public universities. The line labeled as Total Giving Ops + Capital is the same as Total Private Giving. The Total Giving Ops + Capital without PDIP contributions reflects Total Private Giving w/o PDIP. The gap between the lines began with the renewal of the PDIP legislation for FY1999, with most institutions reaching their qualified limits by FY2004.

The median in Figure 17 reflected a spike in private giving activity in FY2005, driven in part by large donations to the professional graduate schools and the flagship institution. Additionally, when comparing Figure 17 to Figure 16, the Median of the Change in State Funding, a similar increase was demonstrated in FY2005 as the state's economy and revenues began to recover.

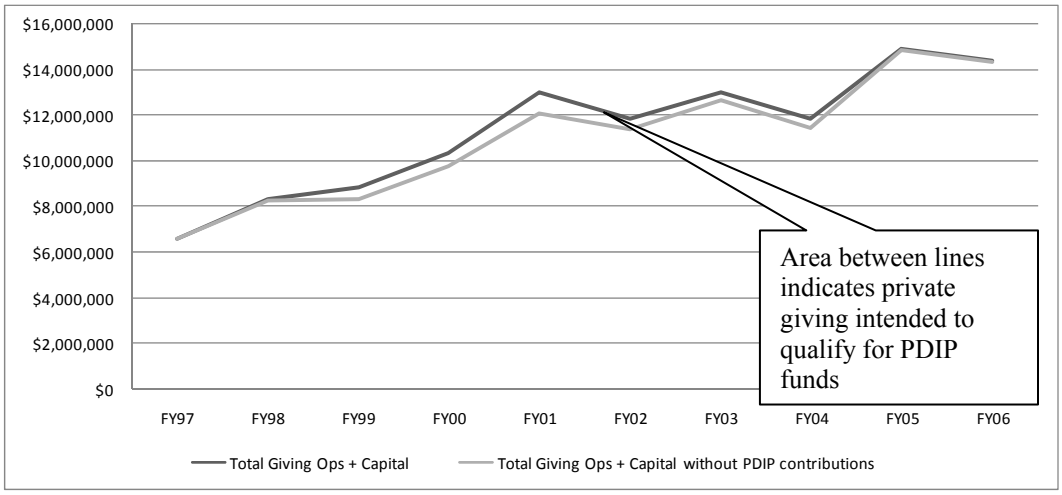


Figure 16. Mean of Total Private Giving by Fiscal Year (FY1997 – FY2006) among all Maryland four year public institutions.

Interestingly, the state's commitment to fund the PDIP during this period lagged by as much as four years from the time the eligible private giving was received. This suggested a relationship to state revenue constraints that occurred between FY2001 and

FY2004. Given the time value of money, this actually made the PDIP program less costly to the state in terms of the constant value of dollars.

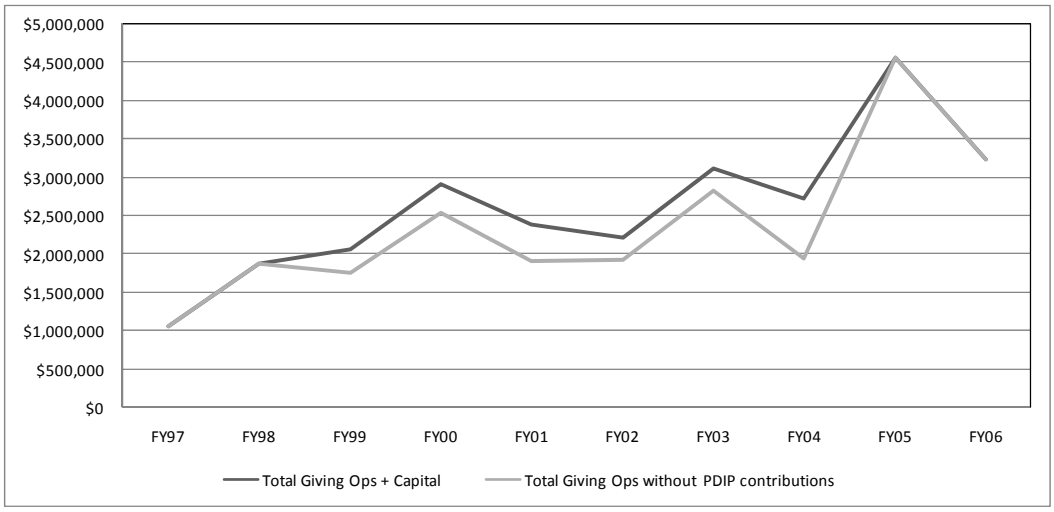


Figure 17. Median of Total Private Giving by Fiscal Year (FY1997 – FY2006).

Table C2 (Appendix) parses the Total Private Giving statistics provided by each fiscal year one step further, incorporating the institution type. The institution type is a generic classification based on the Carnegie Classification. Code 10 represents Masters program institutions. Code 20 is Doctorate Research institutions. Code 30 is Baccalaureate institutions. Code 40 is Special Focus institutions, and Code 50 is the High Research institutions. The precise coding of Maryland's public colleges and universities is contained in Table C3 (Appendix). The statistics in Table C2 indicated that the Special Focus institution and the High Research institution (flagship) have consistently generated the most private giving during this period. Further, the means indicated explain the frequency distribution mentioned earlier with these types of institutions having lower frequencies of higher total private giving. An additional analysis of all HBIs is contained in Appendix D.

The comparison of means for Total Private Giving w/o PDIP eligible contributions (Figure 18) indicated only a slight difference between the means of private giving by institution type during this period. The Master's classification had the most institutions reporting private giving with eight institutions. The Master's, Doctorate Research (one institution), and Baccalaureate (one institution) classifications made up most institutions at the lower end of the private giving spectrum in terms of total dollars. The Special Focus (one institution) and Research institutions (two institutions) represented three universities with higher private giving. Clearly, the research and special focus institutions have demonstrated greater absolute growth in private giving during this period in terms of total private contributions.

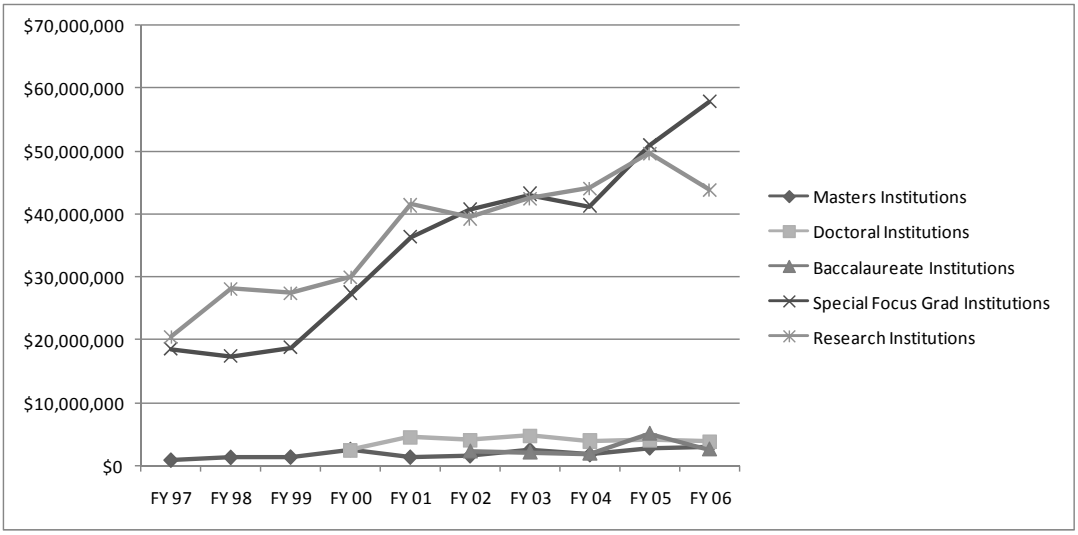


Figure 18. Mean of Total Private Giving without Private Donation Incentive Program eligible contributions by Fiscal Year and Institution Type (FY1997 – FY2006)

Change in State Funding of Institution Operations

Table C4 (Appendix) provided the statistics of the change in state funding one year and two years after the Total Private Giving was recorded. This research examined

the Total Private Giving and the Change in State Funding for Institution Operations. Since private giving did not have a recurring annual base of funds on which to build and there were no mandatory maintenance of effort requirements for state funding levels, the focus of this analysis was on Total Private Giving and the Change in State Funding for Institutional Operations. Private Giving for Capital Projects was included. The purpose was to see the relationship that Total Private Giving to the institution had on changes in state funding for operations. State funding of capital projects was inconsistent year to year and among institutions. The statistics in Table C4 (Appendix) indicated wide variation among the institution types in terms of mean funding. A substantial decline in the change in state funding occurred during FY2000 to FY2002 suggesting a relationship due in part to the macro-economic environment negatively impacting state revenues. Appendix E highlighted information related to the state's economy. As can be viewed in Figures 19 and 20, it took five years for the rate of change in state funding to reach a similar rate as FY2000.

Comparison of Total Private Giving to Change in State Funding

Interpreting the descriptive statistics and the related graphs of private giving and state funding, one can see that the trend lines for each are not similar in Figures 19 and 20. The mean findings presented using 130 cases can be compared to the mean trendlines in Figures 2 and 9 using 13 cases for the annual mean calculation. The implication was that the regional economic circumstances that affected state revenues related to the actual changes in state funding during the period. Visually, the economic cycle may have appeared more dominant in terms of affecting state funding rather than total private giving.

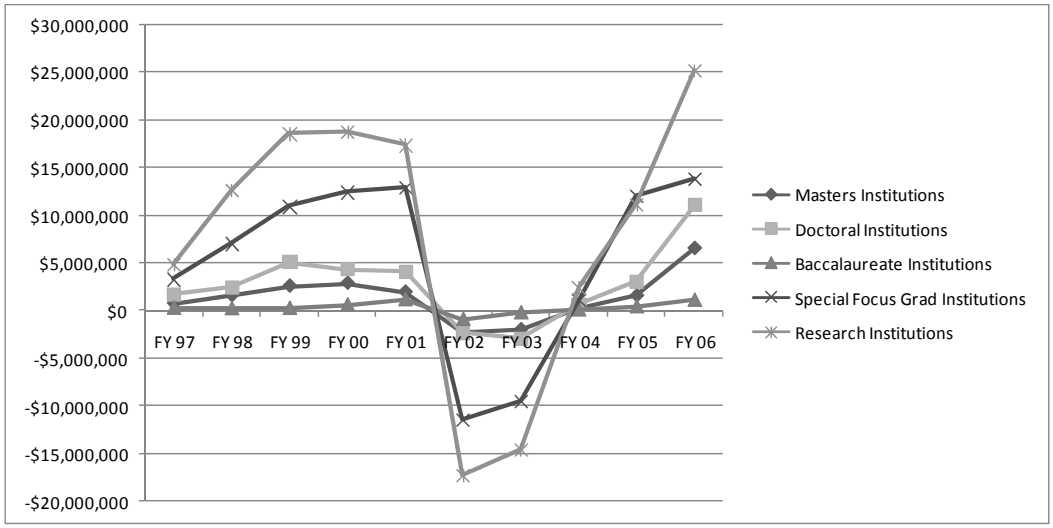


Figure 19. Mean of all Change in Total State Funding in Next Fiscal Year without PDIP by Institution Type (FY1997 – FY2006).

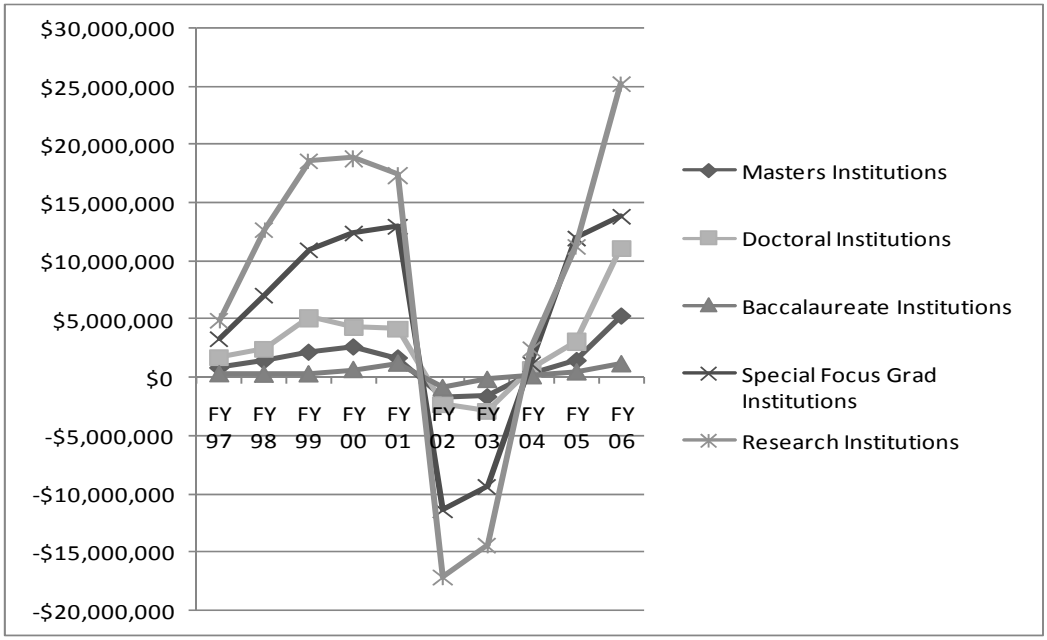


Figure 20. Median Change in Total State Funding Increase in Next Fiscal Year without PDIP by Institutional Type (FY1997 – FY2006).

Endowment and Endowment Expenditure Ratio

Descriptive statistics in Table C5 (Appendix) demonstrated that the greatest type of giving was donor restricted. Accordingly, on occasion an institution reported no unrestricted giving. Unrestricted giving was a fraction of the restricted figure. The endowment expenditure ratio (EER) averaged 0.217 among N = 130, representing the endowment market value to operating budget expenditures in the next fiscal year across all institutions. This translated into the endowment market value equaling 21.7% of the operating budget. The range was from .03, or an endowment of 3% of total operating budget, to .60, or 60% of the total operating budget. Since the reporting of giving in terms of a mean and median for all institutions for a 10 year period may lose meaningfulness, Table 5 provides a breakdown of the same statistics by fiscal year. Once again, on an annual basis restricted giving remained the largest mean each year.

Similarly, if the total state operating support were looked upon as an endowment necessary to support the current level of state funding with a 5% spending level, then during this 10 year period the mean state pseudo endowment would have been $1.16 billion, ranging from a low of $77.3 million to a high of $7.19 billion, with N = 130 cases. To put this in context, if the focus were on FY2006 data, for example, from Table C6, the mean state pseudo endowment was $1.28 billion. This equated to a similar endowment size during the same fiscal year as that of Indiana University and Swarthmore College, and the figure is approximately $1.1 billion below the endowment of Johns Hopkins University (NACUBO, 2006).

Table 5

Descriptive Statistics – Types of Private Giving and Endowment by Fiscal Year (in $)

Year		Unrestricted	Restricted	Capital	Endowment
FY1997	N	10	10	10	10
	Mean	435,663	5,264,115	881,821	29,121,546
	Median	94,150	768,056	168,858	6,429,620
	SD	1,116,635	9,666,766	1,481,630	51,363,665
FY1998	N	10	10	10	10
	Mean	776,520	5,180,223	2,336,097	38,469,693
	Median	163,697	542,579	1,017,744	8,877,470
	SD	1,683,909	10,079,208	3,892,301	67,163,847
FY1999	N	10	10	10	10
	Mean	252,527	5,826,897	2,750,717	49,585,189
	Median	163,563	1,065,696	647,221	11,798,900
	SD	266,274	10,705,337	4,513,313	88,160,977
FY2000	N	11	11	10	11
	Mean	343,241	6,606,473	3,693,591	44,930,744
	Median	216,608	958,490	1,920,450	13,099,400
	SD	354,094	12,482,534	4,549,738	82,867,042
FY2001	N	11	11	10	12
	Mean	595,914	9,184,425	3,522,257	43,709,246
	Median	217,177	1,548,286	922,008	13,023,082
	SD	1,344,221	17,703,139	5,376,331	81,219,079
FY2002	N	11	11	11	12
	Mean	537,419	9,246,624	2,949,912	38,477,640
	Median	250,643	1,158,438	713,417	12,963,943
	SD	914,637	18,446,659	3,872,155	68,831,007
FY2003	N	11	11	11	12
	Mean	593,306	9,944,976	3,423,589	40,523,400
	Median	205,469	1,240,263	1,730,944	13,535,002
	SD	1,151,644	20,207,881	4,051,905	71,560,691
FY2004	N	12	12	12	13
	Mean	493,546	8,944,052	3,235,633	44,877,338
	Median	127,525	1,265,033	1,255,371	15,077,382
	SD	1,110,300	19,367,205	4,753,089	82,726,692
FY2005	N	11	11	11	12
	Mean	525,781	12,022,776	3,239,920	53,560,086
	Median	142,458	1,595,387	1,103,712	17,490,667
	SD	1,072,315	23,215,778	3,760,404	96,700,901
FY2006	N	11	11	11	12
	Mean	634,213	11,322,144	3,486,840	53,852,563
	Median	144,021	1,018,035	1,359,198	17,940,129
	SD	1,251,894	21,455,011	3,945,485	83,539,315

Research Question 1 Summary

In summary, this research question provided the descriptive statistics to establish an understanding among the private giving, state funding, and endowments. The data indicated that the average private giving per fiscal year by institution was highly variable. Restricted funding was by far the most common type of private giving. Private giving's growth ceased during the period FY2001 to FY2004. Private giving increased in FY2005, with large donations to the professional graduate schools and the flagship institution. The descriptive statistics also demonstrated substantial gifts that were received in two instances that had no recognizable affect on state funding. Further, the changes in funding policy during this period appeared to have little affect on funding trends, particularly with the reductions in state funding.

State funding was subject to less variability. Within 5 years of the initial decline in state funding during the period studied, state funding returned to, or exceeded, the previous high. The initial implication was that the regional economic circumstances that affect state revenues may have related to the actual changes in state funding during the period studied. Budget reductions for higher education appeared to be related to reduced state revenues not necessarily associated with personal income. Further analysis of this data in terms of enrollment and analysis of correlation are addressed in the next sections.

RQ2 - Private Giving, State Funding, and Endowment Trends in terms of Enrollment

This research question asks, what are the enrollment trends by institution of the past 10 years relative to the funding trends in RQ1 (Total Private Giving w/o PDIP per Full Time Equivalent (FTE) Student, State Funding w/o PDIP per FTE Student, Endowment per FTE Student, and State Pseudo Endowment per FTE Student)? This

descriptive analysis examined the averaged 10 year institutional data from RQ1 in terms of FTE Student enrollment as a standardized measure. Variables were graphed along proportionate scales for the 10 year period at the individual institutional level, as a composite of all institutions, and by Carnegie-related classifications.

Table 6 demonstrated private giving, the change in state funding, and the institutional budget all by FTE student for the period researched. The FTE student data was extracted from the MHEC *Data Books*. In the course of collecting FTE student enrollment from the four-year public institutions, a change occurred in the data reported by MHEC. Beginning with the 2000 *Data Book*, the FTE enrollment was reported for the prior fiscal year. In the 2000 *Data Book* the FTE enrollment for 4-year public institutions was for FY1999. Prior to this, in the 1999 *Data Book*, the FTE enrollment data for 4-year public institutions were reported from two years earlier, in this case FY1997. The FY1998 FTE student enrollment was not reported in any of the MHEC *Data Books*. Separate comparable data was collected from MHEC's *Trendbook* to close this gap.

Descriptive Statistics

Total Private Giving Without PDIP per FTE Student and State Funding Without PDIP per FTE Student

Using 13 cases representing the institutional average for each variable, the average of Total Private Giving without PDIP per FTE Student was $1,126, with a median of $471. The measures of variability contained in Table 6 reported a range of $77 per FTE Student to $6,709 (N = 13). Conversely, had N = 130 been used, the range offered more detail of individual fiscal years among the institutions ranging from $53 per FTE student to $10,671 (Table C8). The standard deviation was large, indicating that

private giving per FTE was more dispersed. Figure 21 shown below is a histogram of the frequency of the institutional means for Total Private Giving w/o PDIP per FTE Student that visually demonstrates this spread as asymmetrical with a positively skewed distribution. State Funding w/o PDIP per FTE Student had a mean of $7,889 with a median of $6,972. The range was from $1,180 to $25,491.

Table 6
Descriptive Statistics – Total Private Giving, Change in State Operating Funding (at 1 and 2 years), Budgeted Expenditures and Capital Budget per FTE Student (FY1997 – FY2006)

	Mean	Median	SD	Minimum	Maximum
FTE Student	7,301	5,246	6,782	1,753	27,034
Total Private Giving w/o PDIP per FTE Student ($)	1,126	471	1,796	77	6,709
State Funding w/o PDIP per FTE Student ($)	7,889	6,972	5,811	1,180	25,491
Change in State Funding w/o PDIP per FTE Student ($)	265	189	186	103	813
Change in State Funding w/o PDIP per FTE Student in 2 FYs($)	651	610	414	281	1,846
Budgeted Expenditure per FTE Student ($)	16,800	13,614	11,849	9,626	54,324
Capital Budget per FTE Student ($)	2,183	1,788	1,764	0	6,571

N = 13

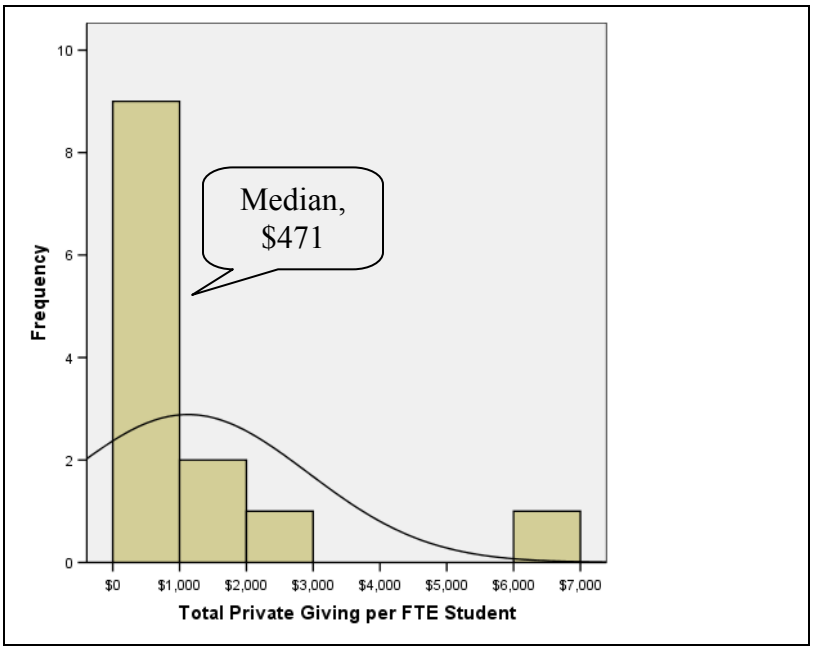
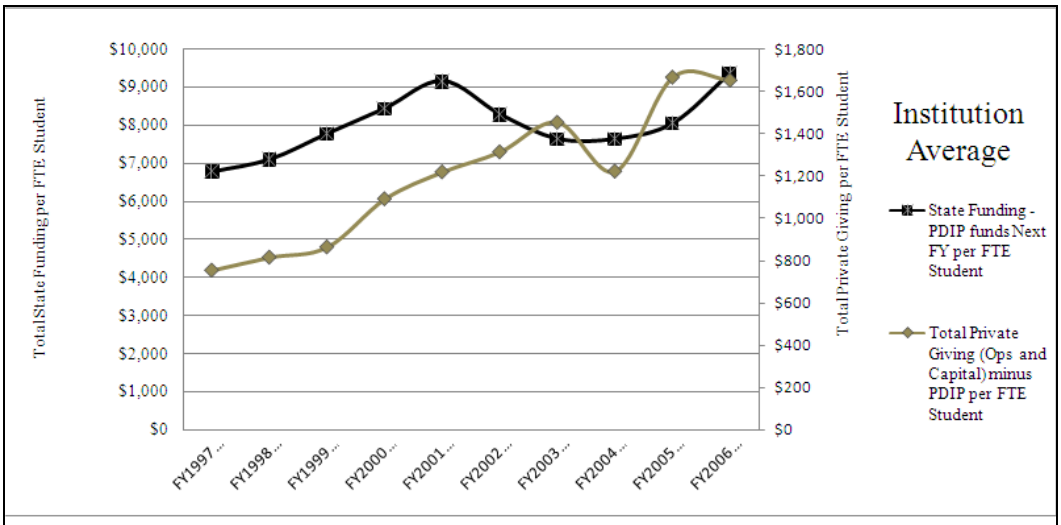


Figure 21. Mean Total Private Giving per FTE Student among 13 institutions.

The comparative analysis (Figure 22) of State Funding w/o PDIP per FTE Student and Total Private Giving w/o PDIP per FTE Student displayed similar trendlines to the total comparisons found in the previous RQ in Figure 2. The reduction associated with the economic downturn from FY2002 through FY2005 was present. Support for statements regarding the economic environment were based on findings in Appendix E. Private giving followed a relatively steady slope until FY2004 when private giving plummeted on a per FTE Student basis.

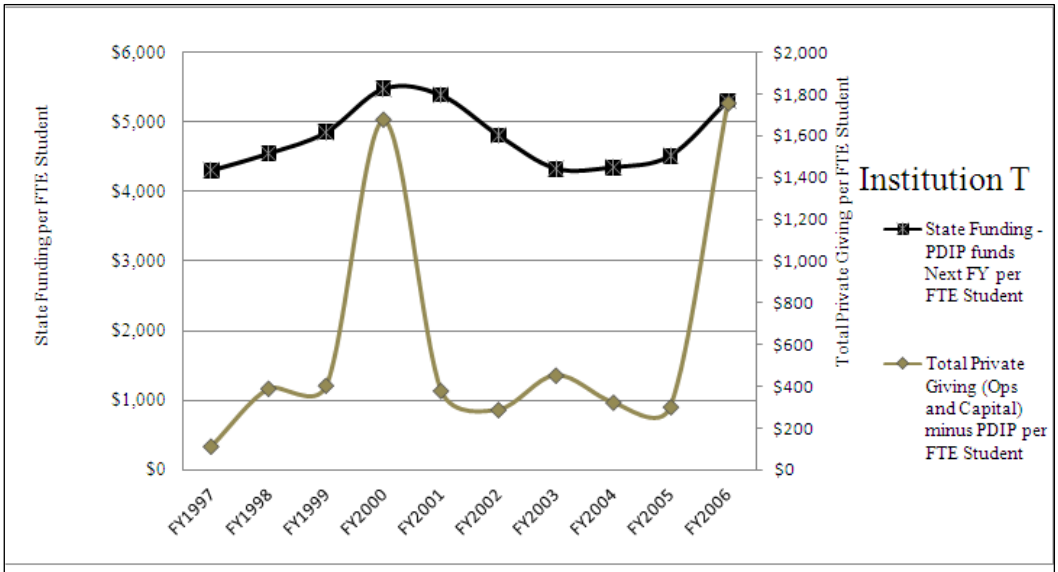
Several institutions generated rather random slopes in their trendlines that represented increases and decreases during the period (Figure 23, C18 – C20). The changes in private giving were plotted in terms of FTE students at each institution. In these cases, it was difficult to distinguish any potential relationship between private giving and state funding based on FTE student.



Institution Average	FY	Total Private Giving (Ops and Capital) minus PDIP per FTE Student	State Funding - PDIP funds Next FY per FTE Student
	FY1997 Average	$755	$6,783
	FY1998 Average	$816	$7,108
	FY1999 Average	$864	$7,784
	FY2000 Average	$1,092	$8,442
	FY2001 Average	$1,218	$9,156
	FY2002 Average	$1,313	$8,281
	FY2003 Average	$1,452	$7,644
	FY2004 Average	$1,222	$7,642
	FY2005 Average	$1,665	$8,051
	FY2006 Average	$1,651	$9,363

Figure 22. Total Private Giving per FTE Student and Total State Funding per FTE Student.

Other institutions demonstrated large changes, often appearing as spikes in the trendline, either positive or negative, in Total Private Giving w/o PDIP per FTE Student (Figure 23, C21 – C23). These changes were followed by more gradual slopes in the trendline. However, the State Funding was more contained, less subject to such variation, with more incremental shifts featuring gentler slopes in the trendline.

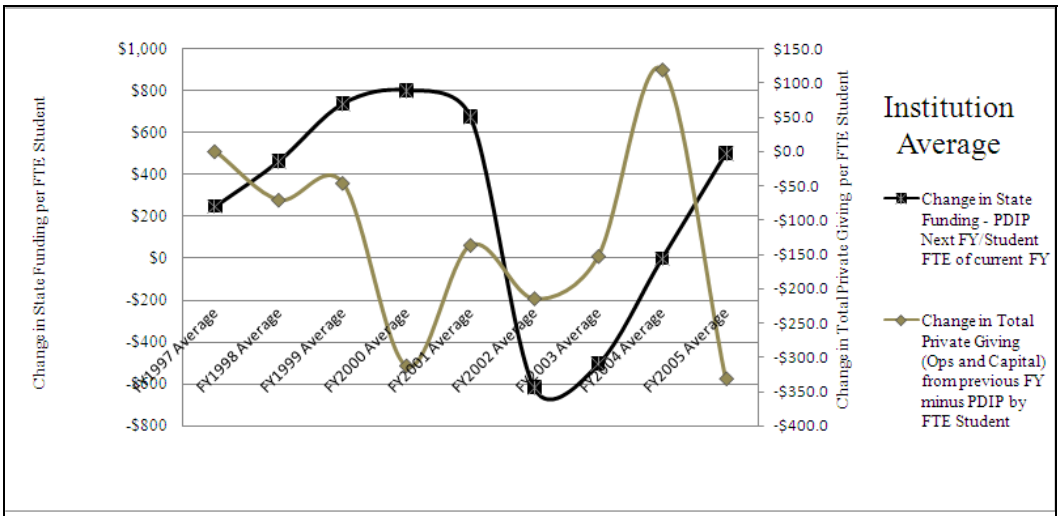


Institution T	FY	Total Private Giving (Ops and Capital) minus PDIP per FTE Student	State Funding - PDIP funds Next FY per FTE Student
	FY1997	$114	$4,298
	FY1998	$390	$4,541
	FY1999	$404	$4,848
	FY2000	$1,676	$5,474
	FY2001	$379	$5,381
	FY2002	$288	$4,803
	FY2003	$453	$4,325
	FY2004	$324	$4,343
	FY2005	$302	$4,509
	FY2006	$1,754	$5,297

Figure 23. Total Private Giving per FTE Student and Total State Funding per FTE Student (SU, Masters)

Rate of Change in Total Private Giving per FTE Student and Change in State Funding per FTE Student

The examination of the rate of change in both variables per FTE student (Figure 24) demonstrated a trendline that was more sporadic for private giving. The rate of Change in State Funding per FTE student was smoother, tending to be more incremental in fluctuation even with the analysis in terms of the standard measure of FTE student.



Institution Average	FY	Change in Total Private Giving (Ops and Capital) from previous FY minus PDIP by FTE Student	Change in State Funding - PDIP Next FY/Student FTE of current FY
	FY1997 Average	$0.0	$246
	FY1998 Average	-$70.8	$463
	FY1999 Average	-$46.3	$736
	FY2000 Average	-$313.0	$799
	FY2001 Average	-$136.9	$671
	FY2002 Average	-$214.8	-$618
	FY2003 Average	-$153.0	-$506
	FY2004 Average	$119.6	-$3
	FY2005 Average	-$331.9	$497
	FY2006 Average	-$17.2	$1,347

Figure 24. Rate of Change in Total Private Giving per FTE Student and Change in Total State Funding per FTE Student

The rate of Change in State Operating Funding per FTE Student statistics are contained in Figure 25 and Table 6, demonstrating a slightly skewed distribution with the mean and median close to one another. The range indicated the average incremental change for the period per FTE student and the effects of state budget reductions during this period. The mean change for state operating funding at one year and two years after the private giving was received was $377 and $651, respectively. The median was $358 and $610, respectively. Both sets of figures are inclusive of PDIP.

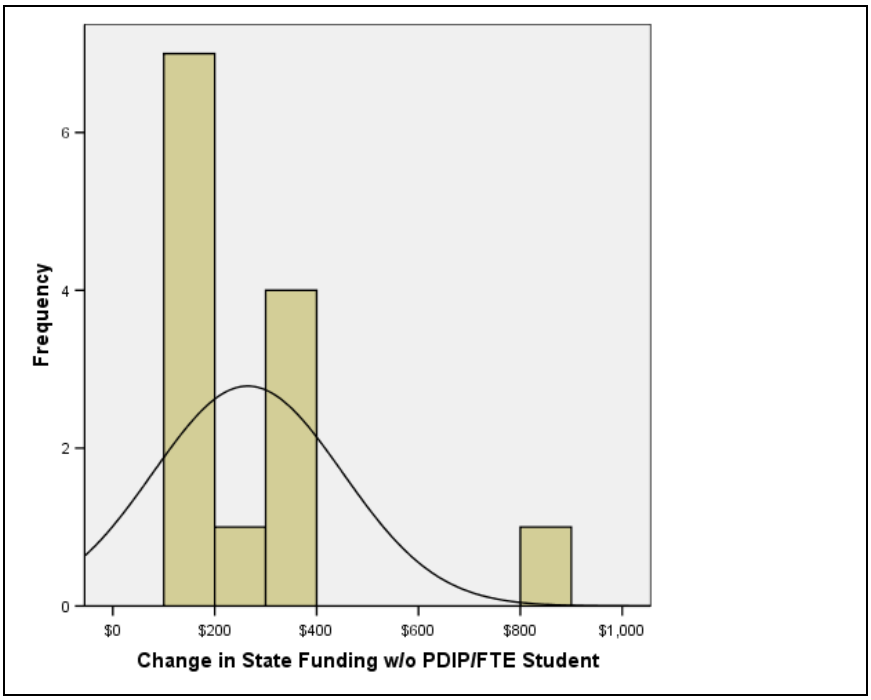
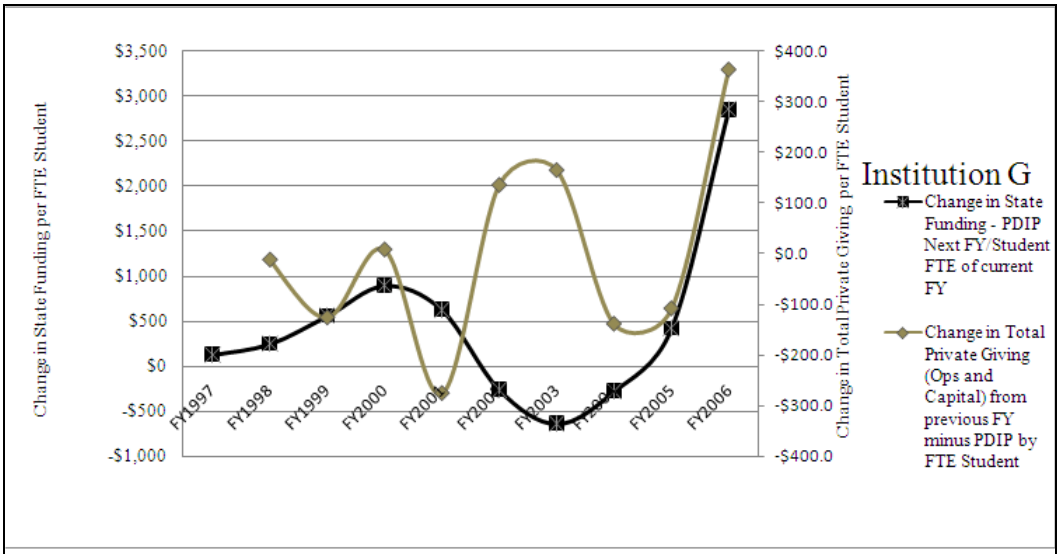


Figure 25. Change in State Funding w/o PDIP Per FTE Student.

Figure 26 represented the sporadic, multiple wave trendline for the rate of Change in Total Private Giving w/o PDIP per FTE Student that occurred among several institutions. The changes, as demonstrated by the slope of the trendline, were not consistent with the Change in State Funding w/o PDIP per FTE Student. Similar visual interpretations were present in other institutions (Figures C24 – C28 in the Appendix).

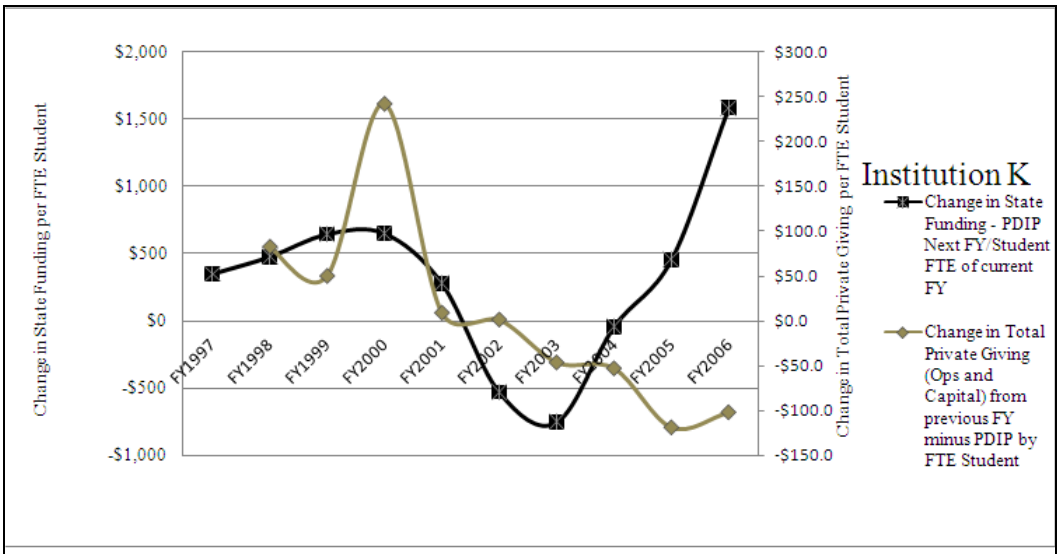
Figure 26 through Figure 29 feature the HBIs within Maryland. In analyzing the descriptive statistics for each institution each one featured a substantial increase in rate of Change in State Funding w/o PDIP per FTE Student in FY2006. Since this represented the next fiscal year, the reference was actually to FY2007 budget data. During this fiscal year, the University System of Maryland had increased state funding of 12.5% while Morgan (Institution R) received increased state funding of 19.2%; Also, the $4.5 million Access and Success program that was previously an educational grant run through MHEC was transferred to the unrestricted operating appropriations of each of the HBIs

(Burnett, 2006). What may have been viewed as a substantial increase in funding in each institution to offset previous reductions was partially due to shifting, potentially supplanting of state funds. The funds from a previously restricted grant program were moved to the operating budgets. The total fiscal capacity of the HBIs had to be offset by the reduction of the MHEC grant program. More discussion on this issue follows below relating to Morgan State University.



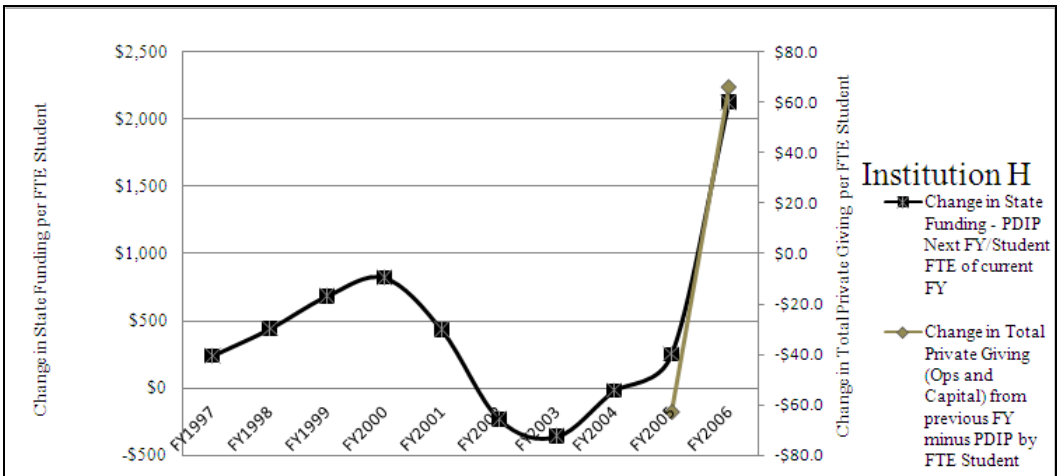
Institution G	FY	Change in Total Private Giving (Ops and Capital) from previous FY minus PDIP by FTE Student	Change in State Funding - PDIP Next FY/Student FTE of current FY
	FY1997		$125
	FY1998	-$12.3	$247
	FY1999	-$126.5	$557
	FY2000	$7.6	$895
	FY2001	-$276.1	$629
	FY2002	$135.1	-$260
	FY2003	$164.3	-$638
	FY2004	-$139.1	-$277
	FY2005	-$108.7	$421
	FY2006	$362.9	$2,851

Figure 26. Rate of Change in Total Private Giving per FTE Student and Change in State Funding per FTE Student (CSU, Masters, HBI)



Institution K	FY	Change in Total Private Giving (Ops and Capital) from previous FY minus PDIP by FTE Student	Change in State Funding - PDIP Next FY/Student FTE of current FY
	FY1997		$349
	FY1998	$82.3	$476
	FY1999	$49.6	$644
	FY2000	$241.6	$650
	FY2001	$8.6	$280
	FY2002	$0.9	-$528
	FY2003	-$46.8	-$751
	FY2004	-$53.5	-$42
	FY2005	-$119.3	$455
	FY2006	-$102.4	$1,584

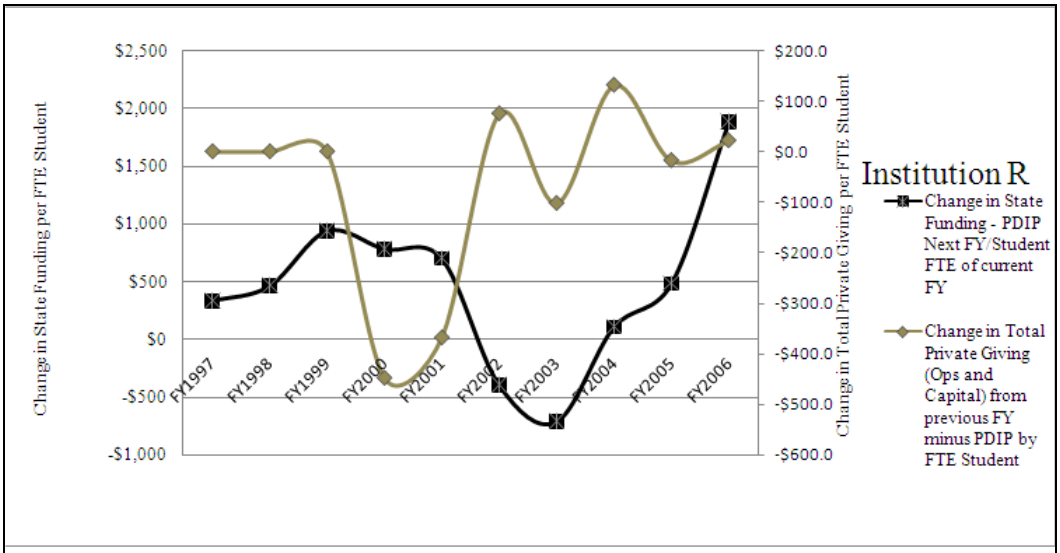
Figure 27. Rate of Change in Total Private Giving per FTE Student and Change in State Funding per FTE Student (UMES, Masters, HBI)



Institution H	FY	Change in Total Private Giving (Ops and Capital) from previous FY minus PDIP by FTE Student	Change in State Funding - PDIP Next FY/Student FTE of current FY
	FY1997		$241
	FY1998		$440
	FY1999		$684
	FY2000		$820
	FY2001		$434
	FY2002		-$229
	FY2003		-$359
	FY2004		-$18
	FY2005	-$62.9	$252
	FY2006	$66.0	$2,126

Figure 28. Rate of Change in Total Private Giving per FTE Student and Change in State Funding per FTE Student (BSU, Masters, HBI)

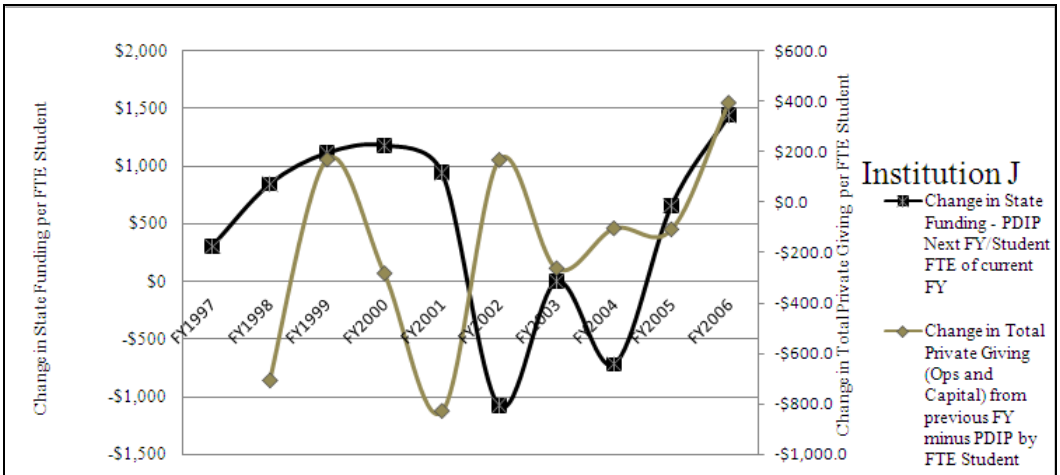
Focusing on the rate of change for Morgan during the final year of this research (Figure 29), which corresponds to FY2007, the state reduced Morgan's HBI specific restricted funding by $1.5 million. The state continued to fund $1.36 million in dedicated HBI enhancement funds. At the same time, state general funding increased $9.95 million which included the $1.5 million previously restricted for the Access and Success Program (Maryland Legislative Services, 2006). The $9.95 million of additional operating funding does not represent entirely new funding. Approximately 15% of the change was shifted from restricted funding. Theoretically, it is possible that no supplanting occurred, that the state had intended to fund $8.45 million in new operating



Institution R	FY	Change in Total Private Giving (Ops and Capital) from previous FY minus PDIP by FTE Student	Change in State Funding - PDIP Next FY/Student FTE of current FY
	FY1997	$0.0	$335
	FY1998	$0.0	$464
	FY1999	$0.0	$942
	FY2000	-$448.1	$785
	FY2001	-$368.1	$701
	FY2002	$75.1	-$398
	FY2003	-$102.2	-$712
	FY2004	$131.5	$110
	FY2005	-$17.6	$486
	FY2006	$21.7	$1,888

Figure 29. Rate of Change in Total Private Giving per FTE Student and Change in State Funding per FTE Student (MSU, Doctoral, HBI)

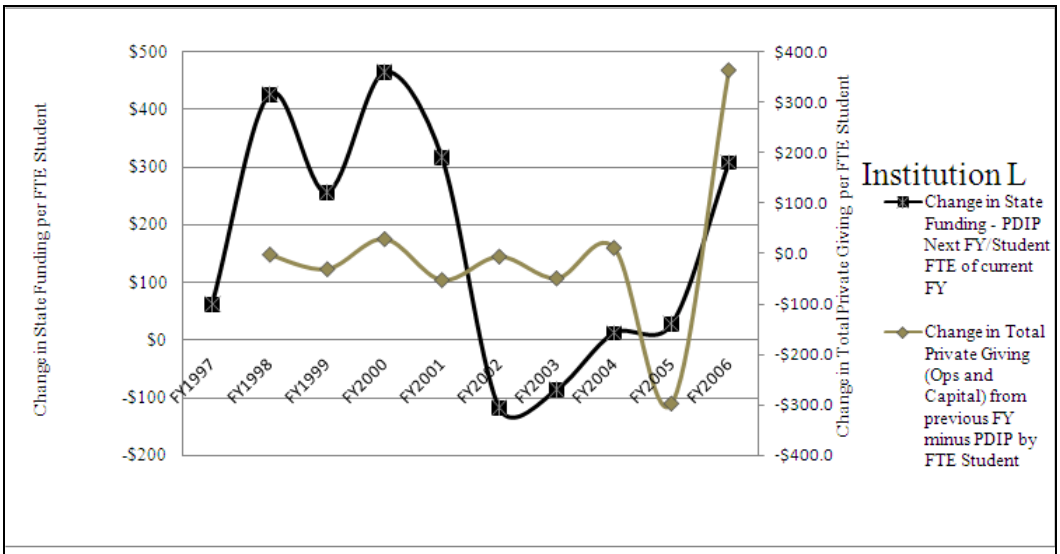
funds and added the formerly restricted funds. The supporting documentation by the state suggests this to be the case. Given the fungibility of the categories of funding and the budget decision making process, the issue of supplanting may become more evident over time. When funds have lost their restricted distinction and overall state funding becomes more constrained, reductions in funding may ultimately reduce state funds. The previously restricted funds help offset reductions, or eventually are included in reductions. The net affect would become supplanting of funds.



Institution J	FY	Change in Total Private Giving (Ops and Capital) from previous FY minus PDIP by FTE Student	Change in State Funding - PDIP Next FY/Student FTE of current FY
	FY1997		$305
	FY1998	-$708.4	$843
	FY1999	$169.1	$1,113
	FY2000	-$283.1	$1,178
	FY2001	-$829.8	$945
	FY2002	$167.0	-$1,075
	FY2003	-$263.3	$0
	FY2004	-$104.4	-$716
	FY2005	-$108.6	$658
	FY2006	$393.7	$1,441

Figure 30. Rate of Change in Total Private Giving per FTE Student and Change in State Funding per FTE Student (UMCP, Research, Flagship)

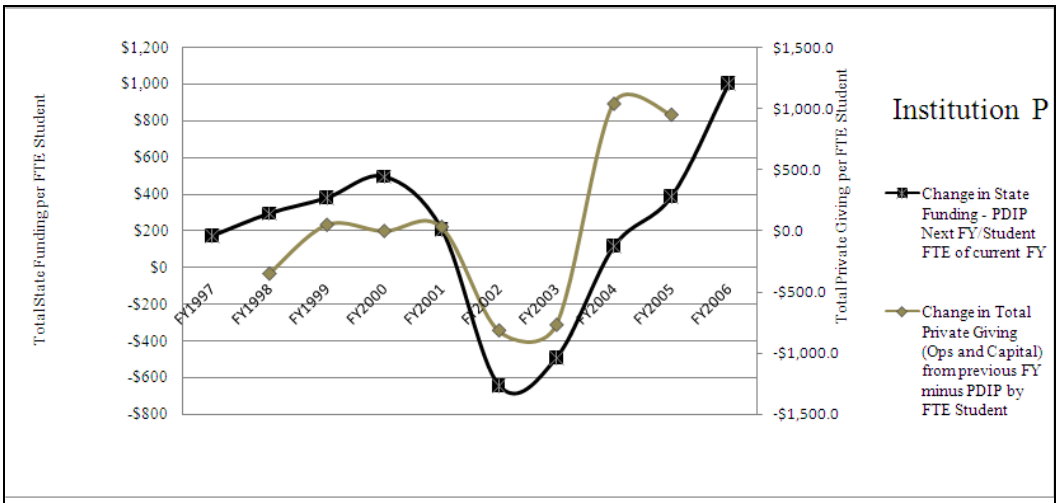
UMCP, the flagship university, demonstrated a double downturn in the Change in State Funding w/o PDIP per FTE Student, even while the Change in Private Giving per FTE Student was more sporadic. Given the downturn followed by recovery that appeared over approximately a five year period that would have incorporated these two downturns, a closer examination of the data was necessary. Enrollment was actually up slightly for both years of the downturn. The issue was the reduction of $29 million and $20 million for the Change in State Funding in the Next Fiscal Year report in FY2002 and FY2004, respectively.



Institution L	FY	Change in Total Private Giving (Ops and Capital) from previous FY minus PDIP by FTE Student	Change in State Funding - PDIP Next FY/Student FTE of current FY
	FY1997		$62
	FY1998	-$2.5	$426
	FY1999	-$31.2	$256
	FY2000	$28.4	$465
	FY2001	-$52.8	$317
	FY2002	-$6.4	-$118
	FY2003	-$49.4	-$86
	FY2004	$10.9	$12
	FY2005	-$297.4	$27
	FY2006	$362.8	$308

Figure 31. Rate of Change in Total Private Giving per FTE Student and Change in State Funding per FTE Student (UMUC, Masters, Distance Learning)

UMUC is the university with a global footprint and extensive on-line component and open enrollment practice. The institution appeared (Figure 31) to generally follow the state funding pattern discussed in the previous RQ. The change figures were affected by the substantial increase in enrollment from 6,907 in FY1997 to 14,809 in FY2006. Private giving appeared to have developed as the university grew.



Institution P	FY	Change in Total Private Giving (Ops and Capital) from previous FY minus PDIP by FTE Student	Change in State Funding - PDIP Next FY/Student FTE of current FY
	FY1997		$172
	FY1998	-$348.7	$296
	FY1999	$51.4	$381
	FY2000	$0.5	$497
	FY2001	$34.2	$209
	FY2002	-$813.4	-$644
	FY2003	-$767.5	-$489
	FY2004	$1,041.5	$117
	FY2005	$951.9	$390
	FY2006		$1,007

Figure 32. Rate of Change in Total Private Giving per FTE Student and Change in Total State Funding per FTE Student (UB, Masters)

The trendlines for UB (Figure 32) represented a rare, somewhat mirror image of the rate of change among the two statistics. The rate of growth for private giving per FTE Student did slow below the comparable change in state funding. At the same time, as the table above indicated, the change was a positive increase, above the previous year, though not as large.

Total Private Giving and State Funding per FTE by Institutional Classification

The descriptive statistics associated with mean Private Giving w/o PDIP per FTE Student and State Funding w/o PDIP per FTE Student in 2 FYs are displayed graphically in Figures 33 and 34 by institutional type and fiscal year. The visual presentation suggested that the private giving was minimally affected by state funding reductions

generated by the economy (Appendix E). The supporting table for these figures can be found in Appendix, Table C9.

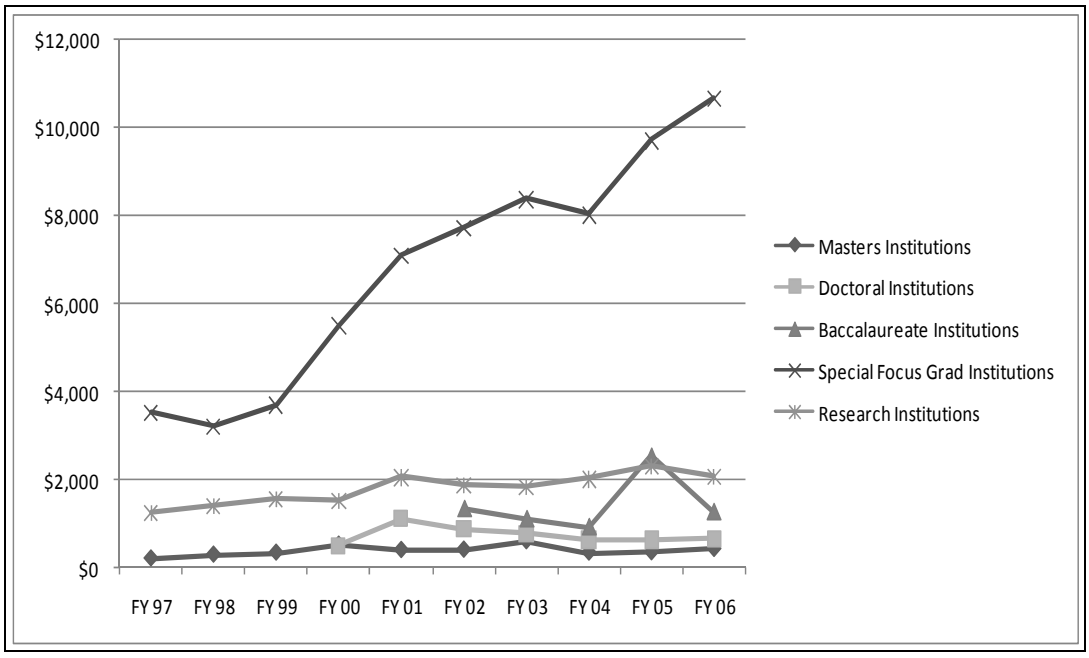


Figure 33. Mean Private Giving per FTE Student by Institution Type (FY1997 – FY2006).

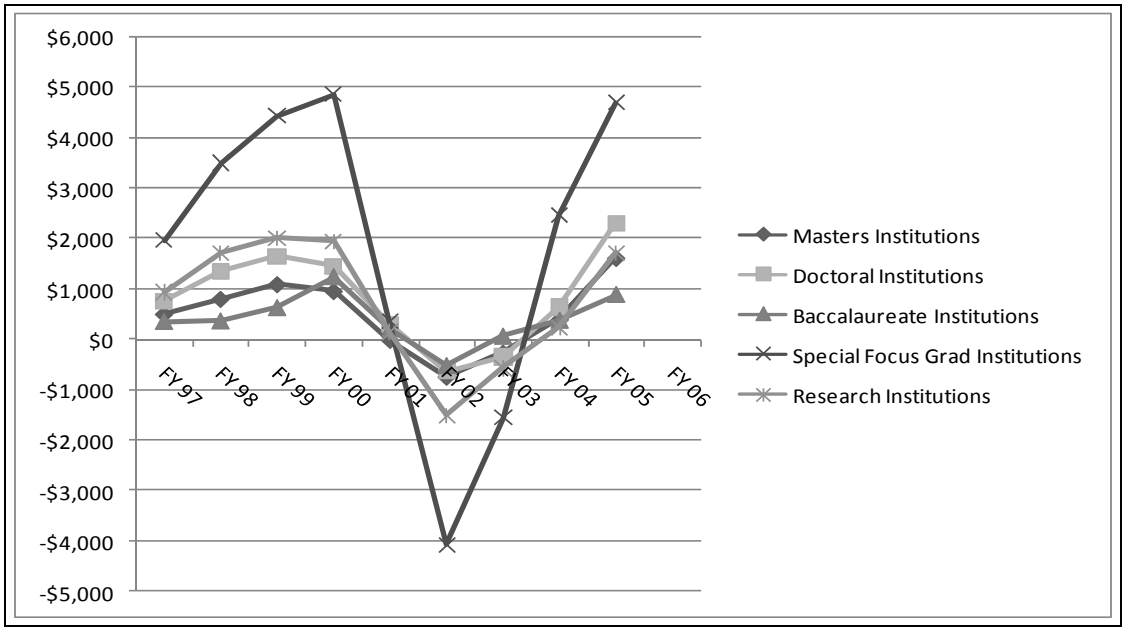


Figure 34. Mean Change in State Operating Funding 2 Years after Private Giving per FTE Student by Institution Type (FY1997 – FY2006).

Endowment and State Pseudo Endowment per FTE Student

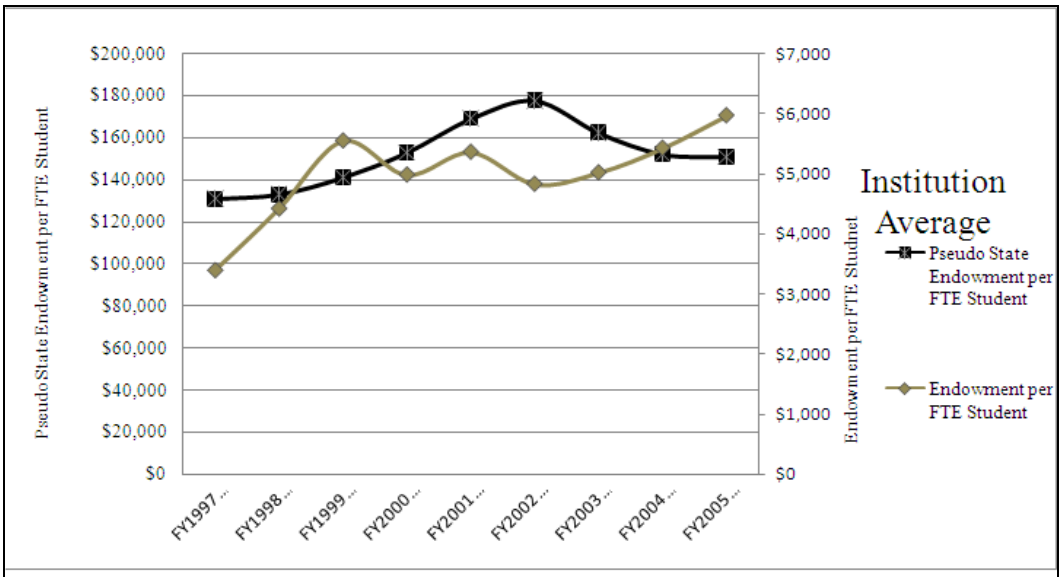
The descriptive statistics contained in Table 7 show the outcome of private giving and state support, examining the endowment and the level of state funding in terms of an equivalent pseudo endowment, the total amount of assets necessary to generate the level of state funding for institutional operations. The mean endowment per FTE student was $4,977, with a median of $2,282 and a range from $581 to $24,028. Examining each year individually rather than using an institutional average found a range of $403 to $31,906. The standard deviation was large, reflective of the broad spectrum of institution types and the levels of operational resources and fundraising infrastructure.

Applying a similar rationale to the state funding of institutional operations from Table 7, the state pseudo endowment had a mean of $152,933 per FTE student, a median of $134,119 and a range of $20,547 to $497,853. The actual range based on individual institutional experience ranged from $11,048 to $583,389. The pseudo endowment represented the state wealth necessary to produce the state operating funding for an institution. This was based on an equivalent private endowment spending rate of five percent of assets. Again, there was a large standard deviation that related to converting the state operating funding for the different institutions to an equivalent endowment.

The graph of Pseudo State Endowment per FTE Student appeared to be inverse of the similar graph of Total State Funding in Figure 2. This was partially reflective of the increase in enrollment during the period studied. The Pseudo State Endowment per FTE featured one of the lowest growth rates, 22.2%, among the financial variables analyzed. Total Pseudo State Endowment growth (Figure 13) was 40.2%. The implication of this analysis was that over the 10 years studied, the theoretical assets of the state necessary to

produce the funding levels that occurred grew slower than the growth in state funding and total private giving. The growth rate would be small if the effects of inflation were factored into the analysis. The per FTE Student figure suggested that the state assets committed to funding these institutions, while increasing over time, increased at a smaller rate than the Total State Funding. The analysis does not account for the growth in the asset base of the state that would be used to generate tax revenues. Additional institutional comparisons are contained in Table C29 – C37 of the Appendix.

Supplemental findings are included in Appendix D pertaining to Historically Black Institutions' private giving and state support. While this analysis was beyond the specific research questions, comparison data was available to generate findings between Historically Black Institutions (HBIs) and Traditionally White Institutions (TWIs). The mean Total Private Giving among HBIs per FTE Student was less than one-third of that of TWIs. The EER for HBIs during this period was also about one-third smaller than the EER for TWIs. Interestingly, when examining the State Pseudo Endowment per FTE Student, the theoretical assets necessary to support state funding of operations divided by institutional enrollment, the medians of both the HBIs and TWIs were similar. The mean for the State Pseudo Endowment per FTE Student indicated substantially more state assets were supporting TWIs than HBIs per FTE student (Table D1 and Figure D6). On the surface, the implication among the funding studied was that overall, less financial resources are available to students of HBIs. Further research of program types and costs and distinction by institution types is necessary to draw more definitive conclusions. Additional interpretations of the findings are included in Appendix D.



Institution Average	FY	Endowment per FTE Student	Pseudo State Endowment per FTE Student
	FY1997 Average	$3,388	$130,740
	FY1998 Average	$4,415	$132,905
	FY1999 Average	$5,544	$140,973
	FY2000 Average	$4,979	$152,855
	FY2001 Average	$5,357	$169,038
	FY2002 Average	$4,825	$177,740
	FY2003 Average	$5,015	$162,313
	FY2004 Average	$5,422	$152,115
	FY2005 Average	$5,964	$150,835
	FY2006 Average	$6,521	$159,817

Figure 35. Pseudo State Endowment per FTE Student and Endowment per FTE Student

Table 7

Descriptive Statistics – Endowment per FTE Student and Pseudo State Endowment per FTE Student (FY1997 – FY2006)

	Mean	Median	SD	Minimum	Maximum
Endowment per FTE Student ($)	4,977	2,282	6,425	581	24,028
Pseudo State Endowment per FTE Student ($)	152,933	134,119	113,846	20,547	497,853

N = 13

Research Question 2 Summary

In summary, this research question provided the descriptive statistics to establish an understanding among the private giving, state funding, and endowments, integrating enrollment into each variable. Graphically, it was very difficult to distinguish any relationship between private giving and state funding based on FTE student. The data indicated that the average private giving per fiscal year by institution was highly variable. Total Private Giving per FTE Student based on institutional means over 10 years averaged $1,126, with a median of $471 and a range of $77 per FTE student to $6,709. Total State Funding per FTE Student had a mean of $7,889 with a median of $6,972. The range was from $1,180 to $25,491.

The analysis of individual institutions also exposed nuances that impacted the ability to make generalizations among the population. Specifically, what appeared as a substantial increase in state support of HBIs was partially offset from what was previously restricted funding. This becomes a basis for potential supplanting of funds.

The mean Endowment per FTE student was $4,977, with a median of $2,282 and a range from $581 to $24,028. Examining each year individually rather than using an institutional average found a range of $403 to $31,906. Looking comparatively at other institutions' FY2006 statistics, and to further illustrate this finding in a national context, such a mean would compare to the University of Northern Iowa at $5,224 with the median comparable to UW – Eau Claire at $2,366. The upper end of the range would compare to the University of Iowa at $31,107 and Elmhurst College at $31,903 (NACUBO, 2006).

Applying a similar rationale to the state funding of institutional operations, the State Pseudo Endowment had a mean of $152,933 per FTE student, a median of $134,119 and a range of $20,547 to $497,853. The actual range based on individual institutional experience ranged from $11,048 to $583,389. The pseudo endowment represented the state wealth necessary to produce the state operating funding for an institution.

The Pseudo State Endowment per FTE featured one of the lowest growth rates during the entire period studied, 22.2%, among the financial variables analyzed. Total State Pseudo Endowment growth (Figure 13) was 40.2%. The implication of this was that over the 10 years studied, the theoretical assets of the state necessary to produce the funding levels that occurred grew slower than the growth in Total State Funding at 56.3%, State Funding per FTE Student at 38%, Total Private Giving at 118%, and Endowment at 94.5%. In fact, the assets necessary to support public higher education funding of four-year institutions grew at a rate below the 28% consumer price index increase during the same period (Bureau of Labor Statistics, 2009). The implication of this analysis indicated additional fiscal capacity theoretically existed in the state tax revenue generating base that could support higher education. The overall growth rate during this period was small if the effects of inflation were factored into the analysis. The per FTE Student figures suggested that the state assets committed to funding these institutions, while increasing over time, increased at a smaller rate than state funding.

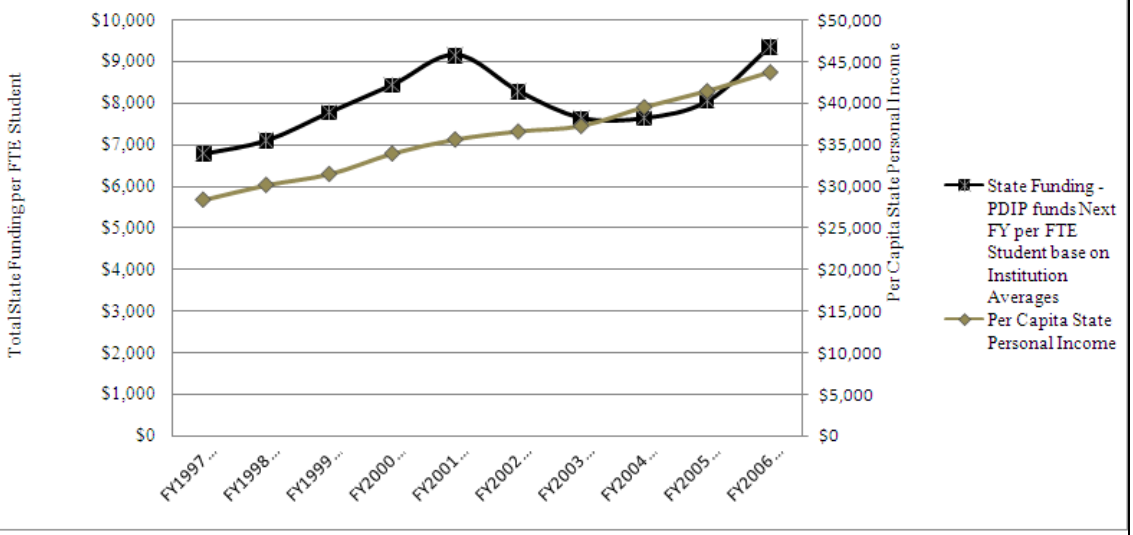
RQ3 – Relationships Among Private Giving, Per Capita Income, Enrollment, and State Funding

Research Question 3 asks, are there statistically significant relationships among Total Private Giving, Per Capita State Personal Income, and institutional enrollment (FTE Student), and the total State Funding per FTE Student? At this time, and through the remaining analyses in this research, all references to private giving and state funding do not include Private Donation Incentive Program funds. The previous RQ provided a descriptive analysis of Total Private Giving per Student FTE and State Funding per FTE Student. Per Capita State Personal Income and the Change in Per Capita State Personal Income within the context of state funding for higher education were analyzed in this RQ.

Per Capita State Personal Income.

Figure 36 indicates that the growth in Maryland Per Capita State Personal Income grew at a stable rate during the period. Per capita income grew from $28,382 to $43,706, approximately 54%, well above the 28% CPI for the same period. This was an indication that the fiscal capacity to support higher education was growing. Table E1 contains statistical output for state funding of institutional operations per capita and as a portion of state personal income. During the 10 year period the state funding institutional appropriation ranged from a low of $0.77 per capita in FY1997 to a high of $67.61 per capita in FY2002 with a mean of $10.95 and a median of $4.44. The mean Institutional Higher Education Appropriation per Capita grew, subject to annual gains and losses, from $9.07 to $11.46, or 26%. Incidentally, the total higher education operations appropriation reported through the Grapevine Survey ranged from $168.59 to $241.38.

This per capita figure incorporated changes in state support of higher education along with population changes.



FY	Per Capita State Personal Income	State Funding - PDIP funds Next FY per FTE Student base on Institution Averages
FY1997 Average	$28,382	$6,783
FY1998 Average	$30,159	$7,108
FY1999 Average	$31,474	$7,784
FY2000 Average	$33,939	$8,442
FY2001 Average	$35,623	$9,156
FY2002 Average	$36,582	$8,281
FY2003 Average	$37,252	$7,644
FY2004 Average	$39,507	$7,642
FY2005 Average	$41,432	$8,051
FY2006 Average	$43,706	$9,363

Figure 36. Per Capital State Personal Income and State Funding per FTE

Change in State Per Capita Income

The Change in the State Per Capita Income was an economic variable intended to demonstrate what happened to the population sustaining the Maryland economy each fiscal year. The per capita income would be dependent upon total incomes and population. Since the state budget was derived from many diverse sources of revenue, including income, property, sales, and fees, collectively the general fund revenues for the

state did not increase at the same rate as the operating budget formulating the basis for a structural deficit. Additional commentary is contained in Appendix E examining other contexts for analyzing state support of higher education.

Analysis of Correlation

An initial analysis of correlation (Table 8) was completed using Total Private Giving, Per Capita State Personal Income, FTE Students, and State Funding per FTE Student. Since the analysis used averages of 10 years of data, the average for Per Capita State Personal Income was a constant. FTE Student was not significant with State Funding w/o PDIP per FTE ($r = 0.064$, $p > 0.1$).

Table 8

Correlations of Total Private Giving, FTE Student, and State Funding per FTE Student among all Maryland 4-Year Public Institutions (FY1997 – FY2006)*

	Total Private Giving	FTE Student
FTE Student	.772**	-
State Funding per FTE Student	.627*	.064

*Listwise N = 13 **significant at the 0.01 level (2-tailed) *significant at 0.05 level.

The research question was nondirectional, not testing for a specific direction in the relationship between variables, using a two-tailed test. This analysis identified a heavy, positive statistically significant correlation between Total Private Giving w/o PDIP and FTE Student ($r = 0.772$, $p < 0.01$) and a moderate positive statistically significant correlation between Total Private Giving and State Funding per FTE Student

($r = 0.627$, $p < 0.05$). Since FTE Student was contained in the calculation of State Funding per FTE, the focus was on testing the predictivity with a simple linear regression model using Total Private Giving and State Funding per FTE Student.

Checking Assumptions of Linear Regression

Prior to performing regression testing, the assumptions of linear regression were reviewed. This included linearity, homoscedasticity, normal distribution, and independence. The use of theory and previous research contained in the literature review was a basis for the current analyses and suggested linear relationships (Johnstone, 1999; Ruppert, 2001). The examination of residual plots (Figure 37) did contain outliers. One was associated with the flagship university's substantially higher private giving mean for the period studied (see triangle marker in Figure 37). With a mean of $64.3 million per year, this was well beyond the more typical institutional means of $1 million to $4 million per year. Further, the Special Focus institution was an outlier with State Funding per FTE Student. UMB with medical, dental, pharmacy, law, and other graduate programs received mean state funding of $25,500 per FTE student per year while other institutions had more typical means of $5,000 to $8,000 per FTE student over the 10 year period (see box marker in Figure 37).

Figure 37 was useful in examining homoscedasticity. The figure suggested the residuals were somewhat scattered with little evidence of a fanning effect. There appeared to be slight heteroscedasticity which would have little effect on significance tests (Cohen, Cohen, West, & Aiken, 2003). More substantial heteroscedasticity can lead to serious distortion of findings and seriously weaken the analysis, increasing the possibility of a Type I error, where a relationship is over-estimated.

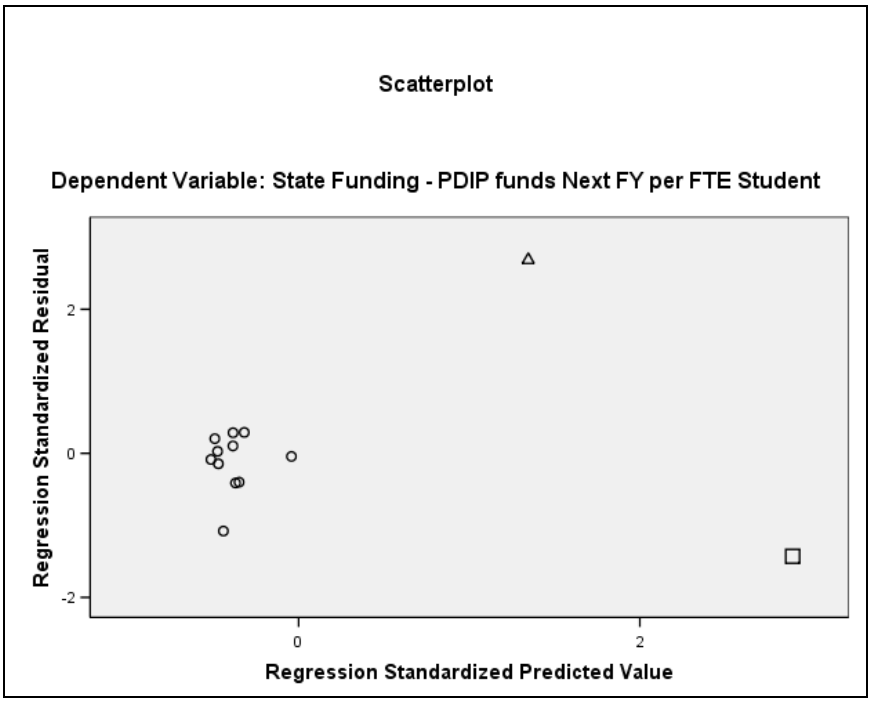


Figure 37. Scatterplot of Total Private Giving w/o PDIP and State Funding w/o PDIP per FTE Student next Fiscal Year.

The histogram suggested a normal curve (Figure 38). The effects of the outliers could be seen situated outside the curve. The independence assumption of residual scores was checked using the Durbin-Watson test. When there is no correlation between successive residual scores, the Durbin-Watson statistic will be close to 2. The result generated (Table 9) was 2.09 indicating that the independence assumption was not severely violated. Generally, Durbin-Watson results should be between 1.5 and 2.5 to indicate independence of observations. The assumptions of linear regression seemed sufficient to enable the regression analysis to proceed.

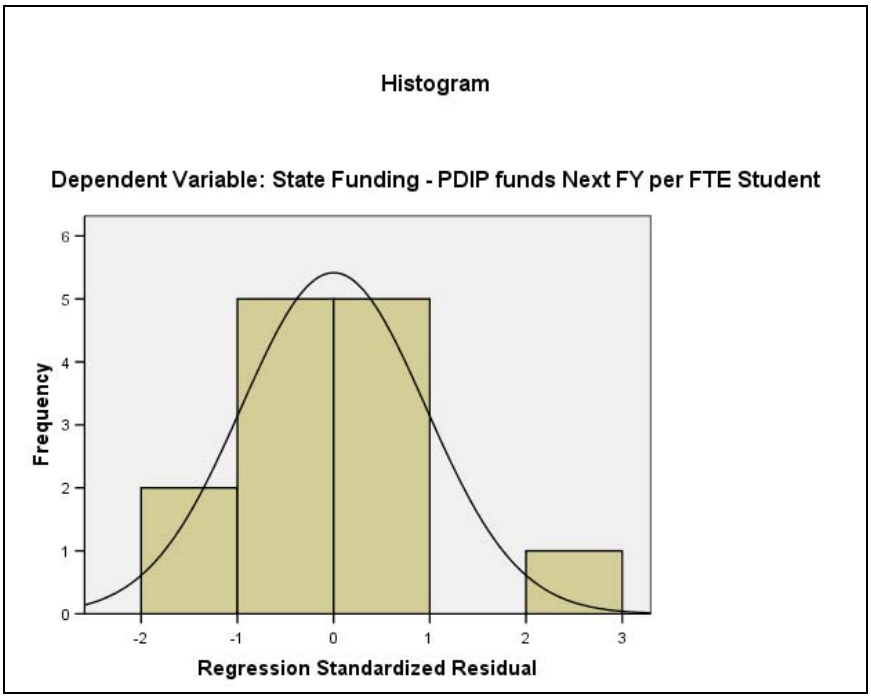


Figure 38. Histogram of State Operating Funding per FTE Student next Fiscal Year.

During initial checking of assumptions, extensive consideration and analysis was undertaken to verify the concept of independence within this methodology through the remaining research questions. Initial design for testing used 130 cases. This represented each fiscal year's data for 10 years among the 13 institutions. This design recognized the initial limitation of the study, given the testing of institutions within a single state. A concern over the independence assumption between the data within each institution was raised. Conceptually, the 130 cases were determined not to be independent of each other.

Inferential statistics require independence of observations. The value of any case which was included should not be predictable from the value of any other case. Due to the concern, this research design was modified and limited in hypothesis testing of the relationship between private giving and state funding using 13 cases. The 13 cases were the mean calculation of each variable for 10 years within an institution. Therefore, the

institutional means became the cases analyzed. The intent was to test cases, one for each institution, that would support the notion of inferential statistics and preserve the assumption of independence using 13 cases. There was recognition that the use of an average may mask relationships among the data during the time period, and evidence of that was found in the descriptive statistics in RQ1 and RQ2.

Simple Linear Regression

Focusing exclusively on the relationship between private giving and state funding per student, the simple regression analysis was performed using Total Private Giving (IV) and State Funding per FTE Student (DV). Table 9 indicates the F test of R^2 Change, the proportional reduction in prediction errors due to the added IV relative to the predictor errors in the baseline model. Results were statistically significant, $F(1,11) = 7.11$, $p < .05$.

Table 9

RQ3 – Coefficients using Total Private Giving w/o PDIP and State Operating Funding w/o PDIP per FTE Student next FY (FY1997 – FY2006)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	SE	Beta		
1	(Intercept)	5957.34	1498.54		3.975	.002
	Total Private Giving	.00	.00	.627	2.667	.022

Note. Adjusted $R^2 = .338$; $F(1,11) = 7.11$, $p < .05$; Durbin-Watson = 2.09; Dependent Variable: State Operating Funding w/o PDIP per FTE next FY

The predictive utility was .338 of the Total Private Giving without controlling for other IVs. This meant 33.8% of variance in the State Operating Funding per FTE Student

based on the 13 cases could be explained by Total Private Giving. This simple regression model supported the predictive utility within the same population with the observed range in the current dataset.

The simple regression model was $Y = 5957.34 + (0.00)X_1$, where Total Private Giving w/o PDIP was X_1. The t test was statistically significant, $t(11) = 2.67$, $p < .05$. The null hypothesis H_0: $\mu_{\text{Total Private Giving}} = \mu_{\text{State Operating Funding per FTE Student Next FY}}$ was not retained. Results supported the predictive utility of the IV for the DV in the population. Interpolation within the range of values of the dataset indicated that this model predicted no change in State Operating Funding per FTE Student Next per dollar Change in Total Private Giving from the Previous FY.

Summary of Findings for Research Question 3

Research Question 3 asked if there are statistically significant relationships among Total Private Giving, Per Capita State Personal Income, and institutional enrollment (FTE Student), and the total State Funding per FTE student? FTE Student was not significant with State Funding per FTE. A heavy positive statistically significant correlation was evident between Total Private Giving and FTE Student, as was a moderate positive statistically significant correlation between Total Private Giving and State Funding per FTE Student.

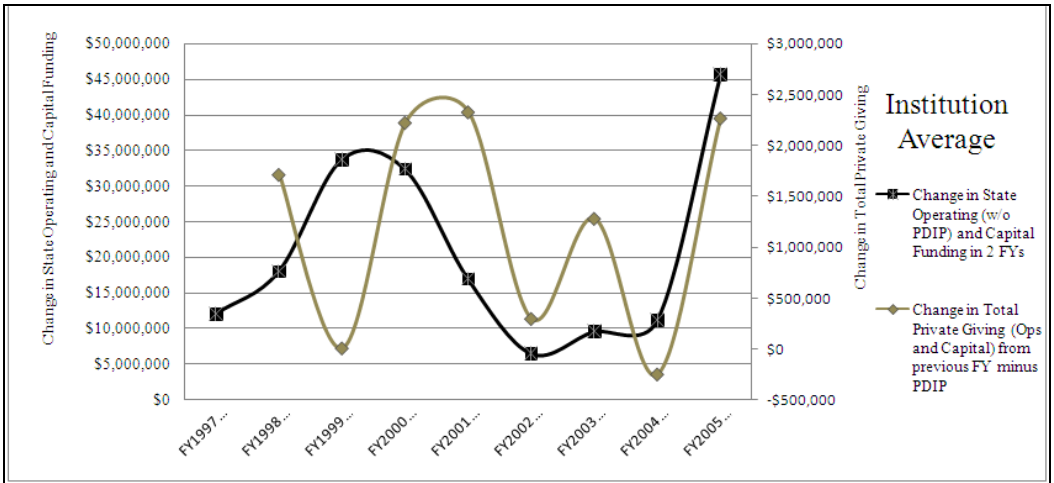
A simple regression analysis based on the statistically significant correlations: H_0: $\mu_{\text{Total Private Giving}} = \mu_{\text{State Operating Funding per FTE Student Next FY,}}$ was not retained. The regression model found 33.8% of variance in the State Funding per FTE Student based on the 13 cases could be explained by Total Private Giving. Interpolation within the dataset

indicated that this model predicted virtually no change (0.00¢) in State Funding per FTE Student per dollar Change in Total Private Giving.

Further, descriptive analyses found that while Per Capita State Personal Income grew during the period from $28,382 to $43,706, approximately 54%, well above the 28% CPI for the same period, the mean Institutional Higher Education Appropriation per Capita grew, subject to annual gains and losses, from $9.07 to $11.46, or 26%. State funding institutional appropriations ranged from a low of $0.77 per capita in FY1997 to a high of $67.61 per capita in FY2002 with a mean of $10.95 and a median of $4.44 in a given year.

RQ4 - Private Giving Predictors of State Funding

Research question 4 asked, are changes in Total Private Giving significant predictors of changes in state Capital Funding and operating funding (State Funding) to the Maryland public four-year institution? Recall that in RQ1 descriptive analyses were presented relating to the rate of Change in Total Private Giving and the rate of Change in State Funding. Given that the descriptive statistics provided a basis that private giving each fiscal year was highly variable while state funding was less variable, this question reviews the descriptive statistics (Table 10 and Figure 39) in terms of the rate of Change in State Capital and Operating Funding in 2 FYs.



Institution Average	FY	Change in Total Private Giving (Ops and Capital) from previous FY minus PDIP	Change in State Operating (w/o PDIP) and Capital Funding in 2 FYs
	FY1997 Average		$12,113,545
	FY1998 Average	$1,711,241	$18,059,647
	FY1999 Average	$5,558	$33,784,881
	FY2000 Average	$2,222,548	$32,424,735
	FY2001 Average	$2,327,033	$17,012,318
	FY2002 Average	$294,827	$6,523,918
	FY2003 Average	$1,279,839	$9,647,143
	FY2004 Average	-$251,015	$11,243,808
	FY2005 Average	$2,266,778	$45,701,234
	FY2006 Average	-$516,041	

Figure 39. Rate of Change in Total Private Giving from previous FY and Change in State Operating and Capital Funding in 2 FYs.

Table 10

*Research Question 4 Descriptive Statistics**- Change in Total Private Giving and Change in State Operating and Capital Funding in 2 FYs *(FY1997 – FY2006)*

	Mean	Median	Standard Deviation	Minimum	Maximum
Change in Total Private Giving	934.8	499.8	1,594.2	-105.4	4,501.4
Change in State Operating and Capital Funding in 2 FYs	18,356.8	11,051.3	16,003.8	2,548.8	53,588.9

*N = 13; $ in $1,000s

Analyzing the trendlines (Figure 39), and recalling that the Change in State Operating and Capital Funding were for 2 Fiscal Years in the future, the trendlines between the two variables demonstrated that both generally corresponded in terms of their rates of change in funding as shown through their slopes. The peaks and valleys of the trendline wave displayed a similar alignment. Recall that the rate of change can be negative given that an increase in funding can be positive but less than the increase in a previous year. A review of the measures of variation (Table 10) indicated a large standard deviation that suggested a large variability of changes in funding around the mean. This was further supported by the range in scores. Histograms for both variables (Figures 40 and 41) demonstrated skewed curves driven in part by the effects of the size and special focus of two of the institutions with higher averages than the other 11 institutions. Further testing for correlation appeared acceptable.

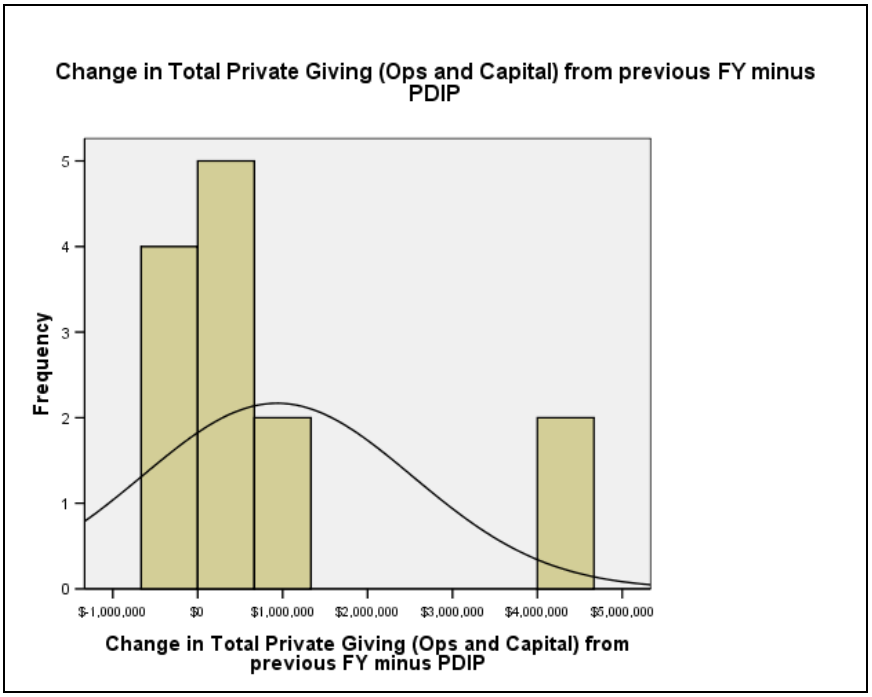


Figure 40. Change in Total Private Giving from previous FY w/o PDIP

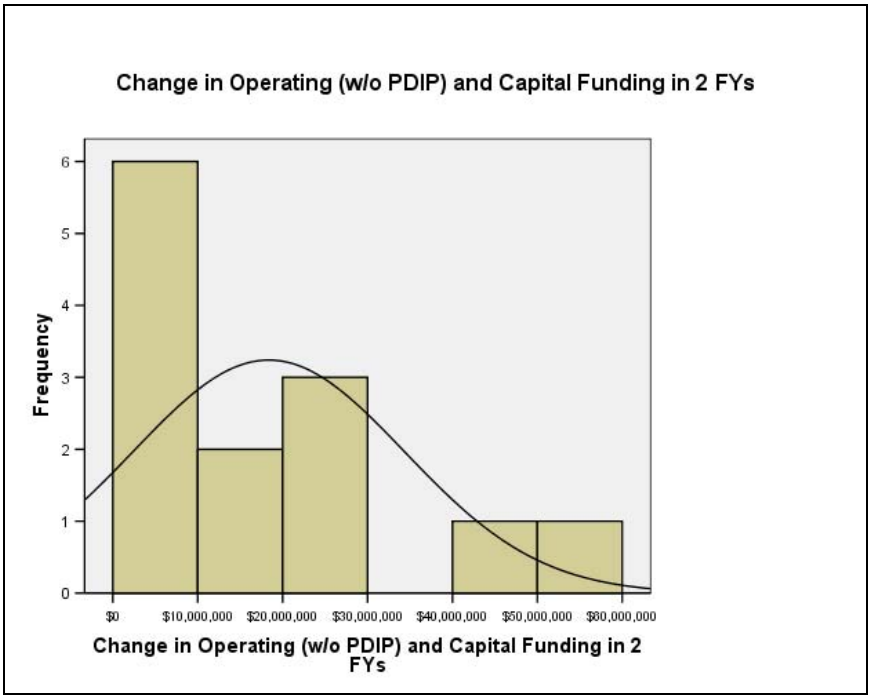


Figure 41. Change in Operating Funding without PDIP and Capital Funding in 2 FYs.

Analysis of Correlation

Statistical testing of correlation revealed a heavy, statistically significant correlation ($r = 0.877$, $p < 0.01$) between Change in Total Private Giving from Previous FY and Change in State Operating and Capital Funding in 2 FYs (Table 11). Both variables did not contain PDIP funds. The heavy positive linear relation between the variables indicated that they should not be used in a regression model. Therefore, no regression testing was performed on these indicators.

Table 11

Correlation of Change in Total Private Giving from Previous FY without PDIP and Change in State Operating (w/o PDIP) and Capital Funding in 2 FYs (FY1997 – FY2006)*

	Change in Total Private Giving from Previous FY without PDIP
Change in State Operating (w/o PDIP) and Capital Funding in 2 FYs	.877**

*Listwise N = 13 **Pearson Correlation is significant at the 0.01 level (2-tailed).

Summary of Findings for Research Question 4

Research Question 4 asked if changes in Total Private Giving are statistically significant predictors of changes in state Capital and Operating Funding to the Maryland public four-year institutions. There was no indication that changes in Total Private Giving were statistically significant predictors of changes in Capital and Operating Funding. Since there was a heavy, positive statistically significant correlation ($r = 0.877$, $p < 0.01$) between Change in Total Private Giving and Change in State Operating and Capital Funding in 2 FYs, the variables were not used for further testing of predictability.

The descriptive statistics (Figure 38) demonstrated that both variables had similar rates of change in funding as shown through their slopes. Further, the analysis found large standard deviations (Table 10) that were further supported by the range in scores among the institutions. Skewed normal curves driven in part by the effects of the size (UMCP) and special focus (UMB) of two of the institutions with higher averages than the other 11 institutions were present in this analysis.

RQ5 - Ranking Variables as Predictors of State Funding

Research question 5 asked, are private giving, institutional wealth, and SAT scores statistically significant predictors of state funding? The descriptive analysis of the variables contained in this question draw upon RQ1 and RQ2. This question attempted to relate a ranking indicator to private giving and state funding. The measures of variation among the ranking indicators included in this research are contained in Table 12.

The analysis included in this section contains consideration of tuition and fees. No RQ addressed such revenues directly. Ratio of State Funding for Institutional Operations to Student Tuition and Fees was a comparator of state funded support to student funded support. The mean of 1.20 indicated total budgeted state operating revenue was 20% greater than the budget revenues from student tuition and fees for support of institutional operations. The median was 1.16. The range reflected the open admissions institution geared for part time students with substantial operations on-line and overseas which received less state support to a special focus institution at the other end with medical, dental, pharmacy, law and other graduate programs that received proportionately more state operational funding.

The Tuition Fee Dependency Ratio (TFDP) was a comparator of total budgeted tuition and fee revenue divided by total institutional operating revenues. In effect, this ratio indicated the percentage of operating revenues derived from student tuition and fees. Table 12 indicated a mean of 0.46 and a median of 0.45 with a range of 0.17 to 0.83. The institution with the lowest TFDP has the highest state support to student tuition, a special focus institution. Conversely, the institution with the highest TFDP has the lowest state support to student tuition, UMUC.

Table 12

Descriptive Statistics – Institutional Retention, 6 Year Graduation Rate, Alumni Giving Rate, FTE Student/FT Faculty Ratio, Average FT Faculty Salary, Ratio of State Funding to Student Tuition and Fees per FTE, and Tuition Fee Dependency Ratio

	Mean	Median	SD	Minimum	Maximum
Institutional Retention	.779	.728	.072	.71	.91
6 Year Graduation Rate	.517	.543	.149	.25	.75
Alumni Giving Rate	.141	.137	.074	.04	.29
SAT Score	1042	1042	154.2	841	1237
FTE Student/FT Faculty Ratio	50.06	19.50	114.24	10.20	430.00
Average FT Faculty Salary	60,385	53,990	12,546	50,896	87,006
Ratio State Funding to Student Tuition Fee	1.20	1.16	.58	.10	2.65
Tuition Fee Dependency Ratio	.46	.45	.15	.17	.83

N = 13; N = 11 for Institutional Retention and 6 Year Graduation Rate (does not include Masters Upper Division institution, and Open Admission on-line Masters institution); N = 10 for SAT Score (Special focus institution, Masters Upper Division institution, and Open Admission on-line Masters institution did not report SAT Scores)

The descriptive statistics associated with institutional ranking indicators (Table 12) related funding to competitive measures contained in Table C7. These include Institutional Retention Rate, Peer Institution Institutional Retention Rate, 6-Year Graduation Rate, 6-Year Peer Institution Graduation Rate, SAT Scores, Alumni Giving Rate, Peer Institution Alumni Giving Rate, Average Full Time (FT) Faculty Salary, and FTE Student per FTE Faculty Ratio. These figures were examined in total across all institutions for 10 years.

The statistics indicated (Table 12) that the mean Institutional Retention Rate of 0.78 was equivalent to the mean Peer Institutions Retention Rate of 0.78 and featured a narrow range of rates from 0.71 to 0.91. Similarly, the 6-Year Graduation Rate with a mean of 0.52 and a median of 0.54 was above the peer rate. The SAT Average Score of entering freshman had a mean of 1042 and median of 1045. The standard deviation was low and range was from 841 to 1237.

Alumni Giving Rates of Maryland institutions were similar to levels reported by Peer institutions with a mean of 0.14 and a median of 0.14. The Average FT Faculty Salaries mean was $60,385 with a median of $53,990 and a range among institutions during the period studied of $50,896 to $87,006. The range among all institutions for each fiscal year (N= 130) was from $28,611 to $104,989 (Table C7). Finally, the FTE Student to FT Faculty Ratio had a mean of 50.6 and a median of 19.5. The high standard deviation was reflected in the range of 10.2 to 430 FTE students to one FT faculty. This corresponded to the types of institutions, their programs, and the use of adjuncts.

Extracting ranking indictors over the 10-year period indicated that retention rates, six year graduation rates for institutions within this study were above their peer

institutions, and freshman SAT scores increased as did alumni giving. There was a great deal of variability in the average FT faculty salary and FT student faculty ratio by institution type. Given the pillars of high performance framing this research, Maryland institutions may need to re-evaluate or replace peer institutions with aspirational institutions, which some institutions have done, for more strategic comparisons of competition.

Analysis of Correlation

This analytical output of the variables (Table 13) based on N = 13 institutions indicated heavy statistical significance between Total Private Giving without PDIP, Institutional Wealth, and State Operating and Capital Funding in Next FY. The remaining relationships involving SAT Score and the financial variables mentioned above were not statistically significant. The findings did not support further testing for predictability.

Table 13

Research Question 5 – Correlations(a) of Institutional Wealth, SAT Score, Total Private Giving without PDIP, and State Operating and Capital Funding in Next FY (FY1997 – FY2006)

	Total Private Giving without PDIP	Institutional Wealth	SAT Score
Institution Wealth	.992**		
SAT Score	.515	.492	
State Operating and Capital Funding in Next FY	.824**	.857**	.392

** Correlation is significant at the 0.01 level (2-tailed).

a Listwise N=10 (Special focus institution, Masters Upper Division institution, and Open Admission on-line Masters institution did not report SAT Scores)

Given the descriptive statistics contained in RQ1, an analysis was undertaken substituting the Change in State Funding in place of State Operating and Capital Funding. The trendlines suggested there may be correlation among the variables. Once again, the findings (Table 14) showed that where variables were statistically significant it was a heavy correlation. This included Institution Wealth and Change in State Funding (r = 0.994, $p < 0.01$), Institutional Wealth and Total Private Giving ($r = 0.992$, $p < 0.01$), and Change in State Funding and Total Private Giving ($r = 0.983$, $p < 0.01$).The correlation results involving SAT Score were not significant.

Table 14

Research Question 5 – Correlations(a) of Institutional Wealth, SAT Score, Total Private Giving, and Change in State Funding (FY1997 – FY2006)

	SAT Score	Institutional Wealth	Change in State Funding w/o PDIP Next FY
Institutional Wealth	.492		
Change in State Funding w/o PDIP Next FY	.489	.994**	
Total Private Giving without PDIP	.515	.992**	.983**

** Correlation is significant at the 0.01 level (2-tailed).
a Listwise N=10 (Special focus institution, Masters Upper Division institution, and Open Admission on-line Masters institution did not report SAT Scores)

Using Swensen's (2000) research as a basis to support testing the relationship between funding and ranking indicators, further analyses of correlation were performed substituting other ranking indicators. The correlation issues among the financial variables made it difficult to test other ranking indicators. The non-revenue related indicators replacing SAT Score (Table C10 – C11), including Institutional Retention, Six Year

Graduation Rate, FTE Student/Full Time Faculty Ratio, and Alumni Giving Rate, were found not to be significant at $\alpha = 0.05$ to State Funding and Private Giving. Interestingly, Average FT Faculty Salary displayed (Table C11) a moderate statistical significant with State Funding per FTE Student Next FY ($r = 0.653$, $p < 0.05$) and Total Private Giving per FTE Student ($r = 0.789$, $p < 0.01$). When faculty salaries were compared as a collective mean of 10 years of data for each institution the analyses supported a moderate, positive statistical significance with State Funding per FTE Student and Total Private Giving per FTE Student. Given such relationship, there is a need to remain cognizant that using 13 cases, each the 10 year mean of institutional data, provided a rather high level aggregate of how variables relate. The use of the mean for such a period has the affect of smoothing variances among the variables that occur from year to year which may not be highlighted in an analysis.

Summary of Findings for Research Question 5

Research question 5 asked if Total Private Giving, Institutional Wealth, and SAT scores are statistically significant predictors of State Funding. These independent variables were unable to be used as predictors of state funding. Heavy, positive statistically significant correlation existed between Total Private Giving without PDIP, Institutional Wealth, and State Operating and Capital Funding in Next FY. The remaining relationships involving SAT Score and the financial variables mentioned above were not statistically significant. The findings did not support further testing for predictability.

Modifying the variables in an attempt to explore other similar relationships was used, substituting the Change in State Funding in place of State Operating and Capital

Funding and removing Institutional Wealth. The modifications continued to indicate heavy statistically significant correlations among the financial variables, making it difficult to test other ranking indicators. Among the modified testing, Average FT Faculty Salary displayed a moderate statistical significant with State Funding per FTE Student Next FY ($r = 0.653$, $p < 0.05$) and Total Private Giving per FTE Student ($r = 0.789$, $p < 0.01$). Given that personnel costs were a major component of institutional expenditures it seems intuitive to expect Average FT Faculty Salaries to relate to State Funding per FTE. The correlation with Total Private Giving per FTE was not as clear since much giving was restricted and not tied to faculty.

RQ6 - Operating Funding, Donors and Research Relationships to State Funds

Research question 6 asked, are Previous Year State Funding, the Number of Private Gifts, and Research Expenditures statistically significant predictors of the State Pseudo Endowment. The pseudo endowment represents the theoretical state assets necessary to generate the operating funds based on assets spending policy similar to private endowments. Since data on number of private gifts Alumni Donors and Research Expenditures served as ranking indicators. Research Expenditures was based on budgeted operating expenditures. Table 15 provides a breakdown of the measures of variation for variables in this analysis. The measures indicate the variables are highly variable.

Table 15

Descriptive Statistics – Previous Year State Funding, Alumni Donors, State Pseudo Endowment, Research Budget, Research Budget per FTE Student, Total Private Giving per FTE Student (FY1997 – FY2006)

	Mean	Median	SD	Minimum	Maximum
Previous Year State Funding	$57,447,171	$24,133,082	$80,638,006	$11,110,836	$303,864,014
Alumni Donors	4,436	2,644	5,105	230	18,378
State Pseudo Endowment	$1,162,194,388	$487,264,392	$1,626,099,527	$230,377,290	$6,127,171,290
Research Budget	$7,167,961	$418,941	$17,619,154	$0	$62,480,570
Research Expenditures per FTE Student	$599	$58	$1,215	$0	$4,059
Total Private Giving per FTE Student	$1,126	$471	$1,796	$77	$6,709

N = 13, except for Alumni Donors where N = 11

Analysis of Correlation

The preliminary analysis of correlation (Table 16) for the variables indicated heavy positive statistical significance in all the relationships tested. In one test between Previous Year State Funding and State Pseudo Endowment, the correlation coefficient equaled 1, meaning perfect positive correlation. Intuitively, this relationship made sense since state funding becomes a factor in the calculation of the pseudo endowment. When the correlations are heavy, approaching or equal to 1, the variables cannot be distinguished in terms of predictability. No further testing was possible.

Table 16

Research Question 6 – Correlations of State Pseudo Endowment, Previous Year State Funding, Research Budget, Alumni Donors (FY1997 – FY2006)

	Previous Year State Funding	Alumni Donors	State Pseudo Endowment
Alumni Donors	.961		
State Pseudo Endowment	1.000**	.960**	
Research Budget	.990**	.957**	.990**

** Correlation is significant at the 0.01 level (2-tailed). N = 11

Given the intent of the RQ, and the issues in the initial analysis of correlation, Previous Year State Funding was replaced with Total Private Giving per FTE Student. In addition, Research Expenditures was adjusted to Research Expenditures per FTE Student. The analysis of correlation of the modified variables (Table 17) indicated a heavy positive statistically significant correlation between Alumni Donors and State Pseudo

Endowment ($r = 0.960$, $p < 0.01$) and between Research Expenditures per FTE Student and Total Private Giving per FTE Student($r = 0.968$, $p < 0.01$). There was no statistically significant correlation between Alumni Donors and Total Private Giving per FTE Student and between State Pseudo Endowment and Total Private Giving per FTE Student. There was moderate, positive statistically significant correlation between Research Expenditures per FTE Student and Alumni Donors ($r = 0.648$, $p < 0.05$) and State Pseudo Endowment and Research Expenditures per FTE Student ($r = 0.704$, $p < 0.05$). The implications of this result were difficult to interpret but suggested the level of research activity as demonstrated through budgeted funding may relate to the level of donor activity. Further, since the research budget was tied to state funding, a correlation to State Pseudo Endowment, which was based on state funding, appears logical. Once again, given the results of this analysis, further testing for predictability was not undertaken.

Table 17

Research Question 6 – Correlations of State Pseudo Endowment, Total Private Giving per FTE Student, Research Expenditures per FTE Student, and Alumni Donors (FY1997 – FY2006)

	Alumni Donors	State Pseudo Endowment	Research Expenditures per FTE Student
State Pseudo Endowment	.960**		
Research Expenditures per FTE Student	.648*	.704*	
Total Private Giving per FTE Student	.502	.538	.968**

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed). N = 11

Summary of Findings for Research Question 6

Research question 6 asked if Previous Year State Funding, the Number of Private Gifts, and Research Expenditures were statistically significant predictors of the pseudo endowment necessary to support state funding. The short answer is "no." The heavy, positive statistically significant correlations between the variables do not enable further testing for predictability.

Previous Year State Funding was replaced with Total Private Giving per FTE Student. Also, Research Expenditures was adjusted to Research Expenditures per FTE Student. The analysis of correlation of the modified variables (Table 17) indicated a heavy positive statistically significant correlation between Alumni Donors and State Pseudo Endowment and between Research Budget per FTE Student and Total Private Giving per FTE Student. There was no statistically significant correlation between Alumni Donors and Total Private Giving per FTE Student and between State Pseudo Endowment and Total Private Giving per FTE Student. There was moderate, positive statistically significant correlation between Research Expenditures per FTE Student and Alumni Donors and State Pseudo Endowment and Research Expenditures per FTE Student. The implication of this result suggested the level of research activity as demonstrated through budgeted funding may relate to the level of donor activity. Further, since the research budget was tied to state funding, a correlation to State Pseudo Endowment, which was based on state funding, appears logical. Once again, given the results of this analysis, further testing for predictability was not possible.

Summary of Findings

This chapter was divided into a section for each research question. Each section contains a subsection summary of the findings. Table 18 below contains an outline of findings by research question.

Table 18 – Outline of Findings by Research Question

RQ1. What are the funding trends by institution of the past 10 years in terms of private giving, total state funding, endowment, and the state pseudo endowment level? (see accompanying figures in Chapter 4)	Range (in $1,000s)	
	Minimum	Maximum
Total Private Giving		
Institution Range for 10 years (N = 130)	215.1	84,044.5
Range of Institutional Means (N = 13)	338.7	64,706.1
Range of Means for all institutions by FY (N = 13)	6,581.6	14,368.1
Range of Change Mean of all institutions by FY (N = 13)	-516.0	2,327.0
Total State Funding		
Institution Range for 10 years (N = 130)	4,300.1	370,688.8
Range of Institutional Means (N = 13)	13,139.3	319,022.6
Range of Means for all institutions by FY (N = 13)	47,363.8	74,023.6
Range of Change Mean of all institutions by FY (N = 13)	-5,164.5	9,828.7
Endowment Market Value		
Institution Range for 10 years (N = 130)	2,400.0	332,483.2
Range of Institutional Means (N = 13)	2,941.4	257,769.9
Range of Means for all institutions by FY (N = 13)	29.121.5	53.852.6
State Pseudo Endowment		
Institution Range for 10 years (N = 130)	77,300.0	7,186,779.5
Range of Institutional Means (N = 13)	230,377.3	6,127,171.3
Range of Means for all institutions by FY (N = 13)	914,278.0	1,368,429

RQ2. What are the enrollment trends by institution of the past 10 years relative to the funding trends in RQ1 (private giving, total state funding, endowment, and the state pseudo endowment level)? (see accompanying figures in Chapter 4)	Range (in $s)	
	Minimum	Maximum
Total Private Giving per FTE Student		
Institution Range for 10 years (N = 130)	53	10,671
Range of Institutional Means (N = 13)	77	6,709
Range of Means for all institutions by FY (N = 13)	755	1,651
Range of Change Mean of all institutions by FY (N = 13)	-332	120
Total State Funding per FTE Student*		
Institution Range for 10 years (N = 130)	552	29,169
Range of Institutional Means (N = 13)	1,180	25,491
Range of Means for all institutions by FY (N = 13)	6,783	9,363
Range of Change Mean of all institutions by FY (N = 13)	-618	1,347
Endowment Market Value per FTE Student		
Institution Range for 10 years (N = 130)	403	31,906
Range of Institutional Means (N = 13)	581	24,028
Range of Means for all institutions by FY (N = 13)	3,388	6,521
State Pseudo Endowment		
Institution Range for 10 years (N = 130)	11,048	583,389
Range of Institutional Means (N = 13)	20,547	497,853
Range of Means for all institutions by FY (N = 13)	130,740	177,740

*variation due in part to UMUC funding vs. enrollment compared to UMB

RQ3. Are there statistically significant relationships among total private giving, per capita state personal income, and institutional enrollment, and the total state general operating funding per FTE student?	Range	
	Minimum	Maximum
Total Private Giving		
Range of Institutional Means (N = 13)	$ 339	$ 64,706
Per Capita State Personal Income		
Range During Period Studied (N = 13)	$ 28,382	$ 43,706
Institutional Enrollment		
Range of Institutional Means (N = 13)	$ 1,753	$ 27,034
(Total) State (General Operating) Funding per FTE Student*		
Range of Institutional Means (N = 13)	$ 1,180	$ 25,491
Analysis of Correlation	Correlation*	
FTE X State Funding per FTE Student	Not significant	
Total Private Giving X FTE Student	Significant, heavy positive	
Total Private Giving X State Funding per FTE Student	Significant, moderate positive	
Simple Linear Regression	Regression Findings	
H_0: $\mu_{\text{Total Private Giving}} = \mu_{\text{State Operating Funding per FTE Student Next FY}}$	Significant, H_0 not retained	
Adjusted R^2	.338	
B	.000	

*Variables that were statistically significant with heavy correlations approaching 1 were not subjected to predictive testing in regression.

RQ4. Are changes in total private giving significant predictors of changes in state capital and operating funding to the Maryland public four-year institution?	Range ($1,000s)	
	Minimum	Maximum
Total Private Giving		
Range of Institutional Means (N = 13)	-105.4	4,501.4
Range of Change Mean of all institutions by FY (N = 13)	-516.0	2,327.0
Change in State Operating and Capital Funding in 2 FYs		
Range of Institutional Means (N = 13)	2,548.8	53,588.9
Range During Period Studied (N = 13)	6,523.9	45,701.2
Analysis of Correlation	Correlation	
Change in Total Private Giving X Change in State Operating and Capital Funding in 2 FYs	Significant, heavy positive	

RQ5. Are total private giving, institutional wealth, and SAT scores statistically significant predictors of state funding?	Range ($1,000s) Minimum	Maximum
Total Private Giving		
Range of Institutional Means (N = 13)	-105.4	4,501.4
Range of Change Mean of all institutions by FY (N = 13)	-516.0	2,327.0
Institutional Wealth		
Range of Institutional Means (N = 13)	236,685.8	6,384,941.8
Change in State Funding Next FY		
Range of Institutional Means (N = 13)	260.2	9,168.7
SAT Score	Range (mean score)	
Range of Institutional Means (N = 13)	841	1237

Analysis of Correlation	Correlation
Total Private Giving X Institutional Wealth	Significant, heavy positive
Total Private Giving X State Operating and Capital Funding Next FY	Significant, heavy positive
Institutional Wealth X State Operating and Capital Funding Next FY	Significant, heavy positive
Total Private Giving X SAT Score	Not Significant
Institutional Wealth X SAT Score	Not Significant
State Operating and Capital Funding in Next FY X SAT Score	Not Significant
Change in State Funding Next FY X SAT Score	Not Significant
Change in State Funding Next FY X Institutional Wealth	Significant, heavy positive
Change in State Funding Next FY X Total Private Giving	Significant, heavy positive

RQ6. Are previous year state funding, the number of private gifts, and research expenditures statistically significant predictors of the pseudo endowment necessary to support state funding?	Range ($1,000s)	
	Minimum	Maximum
Previous Year State Funding		
Range of Institutional Means (N = 13)	$ 11,110,836	$ 303,864,014
Alumni Donors (Private Gifts)		
Range of Institutional Means (N = 13)	230	18,378
Research Expenditure Budget		
Range of Institutional Means (N = 13)	$ 0	$ 62,480,570
State Pseudo Endowment		
Range of Institutional Means (N = 13)	$ 230,377,290	$ 6,127,171,290

Analysis of Correlation	Correlation
Previous Year State Funding X Alumni Donors	Significant, heavy positive
Previous Year State Funding X State Pseudo Endowment	Significant, perfectly correlated
Previous Year State Funding X Research Expenditure Budget	Significant, heavy positive
Alumni Donors X State Pseudo Endowment	Significant, heavy positive
Alumni Donors X Research Expenditures Budget	Significant, heavy positive
State Pseudo Endowment X Research Expenditure Budget	Significant, heavy positive
Research Expenditures per FTE Student X Alumni Donors	Significant, moderate positive
Total Private Giving per FTE Student X Alumni Donors	Not Significant
State Pseudo Endowment X Research Expenditures per FTE Student	Significant, moderate positive
State Pseudo Endowment X Total Private Giving per FTE Student	Not Significant
Research Exp Bud/FTE Student X Total Private Giving per FTE Student	Significant, heavy positive

Chapter V

CONCLUSION

The purpose of this quantitative study was to examine the relationship between and among the changes in the level of institutional fundraising and changes in state funding at Maryland public four-year institutions. The study differentiated types of private giving and the state funding while integrating institutional ranking and state economic indicators into the analyses. The research findings were presented in Chapter 4. This chapter is organized into four sections, an interpretation of the findings, recommendations, implications for future study, and conclusions.

Interpretation of Findings

This section is segmented based on the relationships found in Chapter IV. The findings begin with the only statistically significant predictive model, follow with a discussion of correlated variables, and then descriptive statistics.

Total Private Giving and State Funding per FTE Student

The literature suggested a relationship between private giving and state funding, H_0: $\mu_{\text{Total Private Giving}} = \mu_{\text{State Funding per FTE Student.}}$ The implication was that private giving would increase the likelihood of reduced funding, or smaller increases in funding. RQ3 found a moderate, positive statistically significant correlation between Total Private Giving and State Funding per FTE Student. Simple regression testing indicated 33.8% of the variance in State Funding per FTE Student could be explained by Total Private Giving. However, the regression model demonstrated virtually no change predicted in State Funding per FTE Student per dollar Change in Total Private Giving. There was also no indication through the predictive model that Total Private Giving leveraged

additional State Funding per FTE Student when controlling for the Private Donation Incentive Program.

This result ran counter to the zero sum theory (Thurow, 1987) when private giving increases result in equivalent state funding decreases. Further, any level of supplanting was not supported between private giving and state funding. Public policy makers' views of funding public higher education, though more discretionary than other functions, may be weighted more strongly toward public good with no predicted decrease in public funding as successful private funding occurs (Ostrom & Ostrom, 1971; Zumeta, 2004). This finding appears to substantiate Maryland's espoused policy that private giving "may not be used as a substitute for State General Fund appropriations (Education Article, Annotated Code of Maryland, 2008, § 15-104).

If State Funding per FTE Student were considered an indicator of educational quality, this finding would support related research where maximizing educational quality ranking and prestige is defined in terms of resources (Clotfelter, 1996; Bowen & Breneman, 1993). Further, this could be used to relate Swensen's (2000) correlation between endowment and institutional quality. This assumes Total Private Giving's direct relationship to endowment and the relationship between Total Private Giving and State Funding per FTE Student. Further, the state's funding guidelines tie peer institution performance indicators and funding to the state's funding goal. The funding of peer institutions becomes an indicator of performance.

Similarly, from a public policy perspective, the successful matched funding from the Private Donation Incentive Program demonstrated the state's interest in encouraging fundraising and kept the issue of college fundraising within the legislature's agenda over

the course of several years (Buchanan & Tullock, 1967). Though this research did not address whether the PDIP generated more giving than would have otherwise occurred, from a bounded rationality perspective the implication of leveraging state funding, particularly through periods of fiscal restraint, may have been attractive (Simon, 1976).

Private Giving by Institution

The institutional mean for private giving per fiscal year by institution was highly variable. Restricted gifts, the most common type of private giving, increased in FY2005 following the trough in private giving during the period FY2001 to FY2004, particularly with regard to large donations to the professional graduate schools and the flagship institution. This supports private giving as a mechanism to maximize mission attainment and would be reflective of the variation of institutional missions (Zemsky, Wegner, & Massy, 2005).

The specific analyses of substantial gifts, representing outliers during the period for each institution in RQ1 and RQ2, demonstrated no distinguishable effect on state funding. Even changes in state funding policy appeared to have little effect. State funding, while less variable, relates to fluctuations of state revenues and the competition for funding among state functions (Ostrom & Ostrom, 1971). This would be a topic for further research.

The distribution of private giving totals (shown in Figure 12 in Chapter IV) indicated most institutions had activity toward the lower end of the private giving scale with the special focus and high research institutions exhibiting the consistently higher private giving activity. This aligned with Swensen's (2000) rationale that significant giving related to higher ranked research and teaching institutions.

State Pseudo Endowment

The State Pseudo Endowment was highly variable per FTE student. State Pseudo Endowment and Total Private Giving per FTE Student were not significantly correlated; however, the analyses of the descriptive statistics produced findings that could challenge the previous findings between Total Private Giving and State Funding. The Pseudo State Endowment per FTE grew 22.2% during the period while Total State Pseudo Endowment growth was 40.2%. This finding implies that over the 10 years studied, the theoretical assets of the state necessary to produce the funding levels that occurred grew slower than the growth in Total State Funding at 56.3%, State Funding per FTE Student at 38%, Total Private Giving at 118%, and Endowment at 94.5%. In fact, the assets necessary to support public higher education funding of four-year institutions grew at a rate below the 28% Consumer Price Index (CPI) increase during the same period (Bureau of Labor Statistics, 2009). Through a broader-based perspective, the theoretical state asset level supporting higher education funding could have been increased during this period. This suggests a more subtle constrained view of higher education funding has occurred (Sowell, 1997). If the assets supporting the public funding of higher education are not maintaining equity with the CPI, then a reduction has theoretically occurred, at least in terms of constant dollars. The pseudo endowment is a potential measure to see if policy makers made decisions reducing the level of state funding increases, within the context of inflation and state assets. These findings do raise further questions that private giving may have had a subtle effect on state funding. Further research may provide a quantitative approach to answering such questions.

Funding and FTE Student

A heavy positive statistically significant correlation was reported between Total Private Giving and FTE Student in RQ3. This suggested that there was a relationship between the number of students and giving within the institution. A substantial fluctuation in state funding during the period studied suggested a relationship to the broader economy. Interestingly, if one extrapolates from Johnstone's (2003) trajectory of higher education costs, examining the trend of the mean and median of state funding increases to support institution operations (see Figures 7 and 8 in Chapter IV), the data indicated that even after an economic decline the changes in state funding recovered to substantiate such a trajectory through state support during this 10 year period. Visually, a trend was evident that suggested Sowell's (1987) constrained framework as the de facto state policy-in-use as revenues declined followed by an unconstrained perspective as revenues increased. State funding support tended to waiver during periods of fiscal restraint, likely influenced by the overall availability of revenues (AGB, 2008).

Total Private Giving and Capital and Operating Funding

Changes in Total Private Giving could not be tested as predictors of changes in Capital and Operating Funding. Since these variables displayed a heavy, positive statistically significant correlation, the direct dependence of the variables made predictability testing impractical. Skewed normal curves driven in part by the effects of the size (UMCP) and special focus (UMB) of two of the institutions with higher averages than the other 11 institutions were present in this analysis. Maximizing mission attainment once again appears related, producing larger means based on size and specialty focus (Zemsky, Wegner, & Massy, 2005).

Heavy, positive statistically significant correlation existed between Total Private Giving Institutional Wealth, and State Operating and Capital Funding. From the funding perspective this suggested an alignment between fundraising, endowments, state funding, and capital funding. This may also signal a relationship between the institutional administration that leads the fundraising and budget requests to the state and the state policy makers that establish funding levels through a public choice perspective (Ostrom & Ostrom, 1971). This may signal alertness among institution leaders in that they were able to get their message out to policy makers in an effort to align institutional needs with state funding (Light, 2004).

Funding and Ranking Indicators

When attempting to test the relationship and predictability of funding and SAT Score as a ranking indicator, Total Private Giving Institutional Wealth, and State Operating and Capital Funding were not statistically significant with SAT Score. This did not support Swensen's (2000) correlation. A modification of variables found Average FT Faculty Salary displayed a moderate statistically significant correlation with State Funding per FTE Student and Total Private Giving per FTE Student. Given that personnel costs were a major component of institutional expenditures it was intuitive to expect Average FT Faculty Salaries to relate to State Funding per FTE. The correlation with Total Private Giving per FTE supported Swensen's correlation, but this also pointed out the need for additional testing among a larger population.

Heavy, positive, statistically significant correlations existed between Previous Year State Funding, Alumni Donors, and Research Expenditures and State Pseudo Endowment. Further testing found a heavy, positive, statistically significant correlation

between Alumni Donors and State Pseudo Endowment and between Research Budget per FTE Student and Total Private Giving per FTE Student. The use of additional ranking indicator variables appeared to align with Swensen's (2000) findings between endowment and quality indicators. There was a moderate, positive, statistically significant correlation between State Pseudo Endowment and Research Expenditures per FTE Student. This finding suggested the level of research activity as demonstrated through budgeted research funding related to the level of state funding, as demonstrated with the State Pseudo Endowment.

Endowment and EER

The use of the Endowment Expenditure Ratio and the Endowment Market Value (MV) graphed as similar trendlines displaying annual change as parallel (Figure 12, FY1997 – FY2004) could indicate the operating budget as aligned with the change in Endowment MV. Similarly, if a comparison of trendlines demonstrated the EER slowing below the rate of change of the Endowment (see Figure 14 in Chapter IV), budgeted expenditures rate of change would be slowing or even reduced. This finding implies that while this may occur during a short time frame, it would not be sustainable over the long term. The rate of change would likely slow or decline (see Figure 15 in Chapter IV), where the trendlines would not continue in a divergent pattern over time. These trendlines become tools for comparison of two ratios that could be integrated into the alert institution's advancement planning and assessment (Light, 2005).

Historically Black Institutions (HBIs)

The analysis of individual institutions also exposed nuances that impacted the ability to make generalizations among the population. Specifically, what appeared as a

substantial increase in state support of Historically Black Institutions (HBIs), offsetting previous reductions, was at least partially comprised of restricted funds being reclassified to unrestricted and used to support general operations. Previously restricted grant program funds were shifted to the operating budget. From a technical perspective, this portion of the operating funding increase was supplanting restricted funding.

Additionally, the mean Total Private Giving among HBIs per FTE Student was less than one-third of that of Traditionally White Institutions (TWIs). The EER for HBIs during this period was also about one-third smaller than the EER for TWIs. Interestingly, when examining the SPE, the medians of both the HBIs and TWIs were similar. The mean for the SPE indicated substantially more state assets were supporting TWIs than HBIs per FTE student (see Table D1 in Chapter IV). Overall, less financial resources were available to students of HBIs, based on this research. However, it is important to note that the types of institutions and the programs differ between HBIs and TWIs which relates to the costs and level of state support per student.

Recommendations

Given the results of this study, an operational model is presented to assist institutional advancement and government relations efforts to maximize funding. There are six recommendations comprising this model. These recommendations form the baseline for understanding the relationship between private giving, continued state funding, and the need to continue efforts to ensure high performance for fundraising and state funding.

First, institutional fundraising efforts should be continued and expanded to generate more robust and diverse revenue sources to sustain operations and capital

investment in the future. This research indicated that Total Private Giving was a partial predictor of State Funding per FTE Student, although there was no multiplier effect on private giving leveraging increased state funding. Moreover, the statistical analyses and figures reviewed found no indication of the supplanting of state funds with private giving funds. State policy served to encourage private giving and protect the funds from supplanting.

The private donation incentive efforts increased the awareness of institutional fundraising among university leaders and state policy makers. The state funding designed to match private giving contributions was consistently exhausted and the program was reauthorized. Even with the heightened awareness of private giving among state officials, there was no indication of supplanting of state funds. State law espoused that state funding may not be supplanted by private giving, and the data indicated adherence to the law. The expansion of fundraising efforts could enable smaller institutions and those with newer organizations to reach a critical funding level to sustain the operation. For the larger and more mature organizations, this becomes a means to continue to add diversity of financial resources to the support of the institution.

Since the economic situation today has changed dramatically from the period studied, an increased emphasis on self-sufficiency, including increased private giving, may sustain the future resource needs of public institutions, particularly those that have seen declines in state support (Cash, 2001). The institution can be agile in seeking private giving as it adapts to the economic situation, while continuing to maintain an effective relationship with state policy makers establishing funding priorities.

Second, supplanting theory needs to be formalized, building awareness and legitimizing its presence in public budgeting. Rooted in political economy and public choice theory, supplanting theory is more specialized (Buchanan & Tullock, 1967; Ostrom & Ostrom, 1971). Supplanting can affect partial changes in funding, rather than all the change in funding as would occur in zero sum theory (Thurow, 1987). Supplanting theory becomes more evident when a sudden, material increase in restricted funding occurs. If operational plans are not in place, there may be a tendency to shift current unrestricted expenditures to the restricted funds, thereby supplanting funds. A reprioritization and shifting of such finite funding to other organizations serving other needs could occur.

Supplanting theory can explain fragile expectations within public budgeting as institutions become used to operating under increased fiscal restraint. This is counter to Bowen's Revenue Theory (1980). Constitutional economics also supports supplanting theory, evident from the legislature's codification of restrictions on substitution of private giving for state appropriations (Buchanan & Tullock, 1967).

Supplanting theory recognizes the tendency of an institution, when provided new funding, to substitute the new funding for existing funding. The actual outcome of expenditures incurred based on the new funding may not change, overall. Therefore, the affect of the new funding would not be evident in terms of total expenditures. Supplanting may be particularly prominent when new funding is restricted, of limited duration, and existing funding is controlled by the institution and may be carried forward to the next fiscal year for other uses. Supplanting theory is based on an awareness that the institution may be prepared to utilize new funding. However, there may be the

tendency to access the funding that is more likely of restricted and limited duration, supplanting other funding as the institution ramps-up for additional operations or expenditures.

Third, a closer examination of potential supplanting is in order. This research did not find support for supplanting of state funds with private giving. However, in one related action by the state, the shifting of restricted funds to unrestricted operations did raise the potential for supplanting of funds over time. The supplanting effect may be more subtle, taking several years to occur and involving other state actions unrated to private giving.

During the state budget deliberation process there can be a great deal of debate and contemplation over higher education funding levels. As Ruppert's (2001) attitudinal survey indicated legislative leaders did consider higher education's ability to raise private funds as an alternative to continued increases in state funding. Between an initial state budget proposal and final approval, an increase in state funding may have occurred although the increase could have been reduced at final passage. This reduction, couched within an increase of state funding, could potentially be considered supplanting as state officials acknowledge private giving successes and choose to reduce the rate of increase in public funding of higher education.

Fourth, an understanding of the triad of variables relationships should be developed. This triad, private giving, institutional wealth, and ranking indicators, has been found to be correlated in many cases. Building on Swensen's (2000) correlation of endowment to institutional quality, the triad serves as a framework to approach the three variables and their derivations. The triad implicitly represents a logic supporting the

testing of private giving and fundraising. Private giving relates to institutional wealth which relates to ranking indicators. Building upon this relationship, testing can be undertaken to see how the three variables relate. Based on the correlations exhibited in this research, applying the triad framework, institutional leaders could attempt to align Average FT Faculty Salary with State Funding per FTE Student, a basis of institutional wealth, and Total Private Giving per FTE Student. Research Expenditures per FTE Student was significantly correlated with Total Private Giving, as was Research Expenditures per FTE Student and State Pseudo Endowment. This research does not validate the triad as a consistent model, and the triad does not imply a direction in the relationship between variables. The triad is useful in framing the relationship among the three types of variables.

Academic leaders can apply the triad in terms of contextualizing relationships between funding, wealth, and ranking variables. The triad may potentially legitimize fundraising or wealth-building efforts in terms of specific ranking indicators. The triad can be used in determining historical correlations and predictability. This can serve as the basis of future fundraising efforts and linking those efforts to ranking variables that may assist in the marketing efforts.

Fifth, the State Pseudo Endowment (SPE) and Endowment Expenditure Ratio (EER) should be used routinely to gauge performance. The SPE determines the state wealth supporting the institution and may be useful in monitoring funding relative to inflation and the state's fiscal capacity. The EER monitors the relationship between endowment and the operating budget and is useful in benchmarking.

Table 19 – FY 2007 Endowment and Pseudo Endowment Assets and Endowment Expenditure Ratio

	Endowment Size ($000)	Endowment per Student	State Funding ($000)	Pseudo Endowment ($000)	Total Endowment and Pseudo Endowment Assets ($000)	Total Endowment and Pseudo Endowment Assets per FTYE Student	Endowment Expense Ratio
Princeton	$15,787,200	$2,228,257			$15,787,200	$2,228,257	19.49
Yale	$22,530,200	$1,983,641			$22,530,200	$1,983,641	10.69
Harvard	$34,634,906	$1,774,875			$34,634,906	$1,774,875	12.49
Stanford	$17,164,836	$1,152,776			$17,164,836	$1,152,776	7.10
MIT	$9,980,410	$973,699			$9,980,410	$973,699	4.70
Cal Tech	$1,860,052	$891,684			$1,860,052	$891,684	3.70
Howard	$523,690	$54,654	$204,404	$4,443,565	$4,967,255	$518,394	11.24
Duke	$5,910,280	$475,868			$5,910,280	$475,868	3.08
Washington	$5,567,843	$473,738			$5,567,843	$473,738	3.39
Chicago	$6,204,189	$469,765			$6,204,189	$469,765	4.68
UNCH	$2,164,444	$78,091	$488,678	$10,623,435	$12,787,879	$461,373	8.32
Emory	$5,561,743	$458,511			$5,561,743	$458,511	4.94
Northwestern	$6,503,292	$397,390			$6,503,292	$397,390	5.21
Brown	$2,780,798	$350,226			$2,780,798	$350,226	5.69
Virginia	$4,370,209	$200,019	$147,431	$3,205,022	$7,575,231	$346,708	8.10
Columbia	$7,149,803	$337,398			$7,149,803	$337,398	3.27
Pennsylvania	$6,635,187	$317,336			$6,635,187	$317,336	2.83
Vanderbilt	$3,487,500	$300,647			$3,487,500	$300,647	2.82
Michigan	$7,089,830	$145,573	$325,796	$7,082,522	$14,172,352	$290,995	6.36
Delaware	$1,397,492	$91,471	$113,098	$2,458,652	$3,856,144	$252,398	5.99
Johns Hopkins	$2,800,377	$195,434	$21,009	$456,717	$3,257,094	$227,308	1.29
Case Western	$1,841,234	$215,551			$1,841,234	$215,551	2.52
University of Arkansas	$876,839	$56,327	$110,788	$2,408,435	$3,285,274	$211,041	21.23
Yeshiva	$1,409,576	$189,408			$1,409,576	$189,408	2.79
Texas (Austin)	$15,613,672	$111,775	$316,406	$6,878,391	$22,492,063	$161,015	13.85
Tufts	$1,452,058	$156,861			$1,452,058	$156,861	2.77
Texas A&M System	$6,590,300	$78,258	$275,609	$5,991,500	$12,581,800	$149,406	8.68
UMCP	$810,374	$10,718	$400,905	$8,715,326	$9,525,700	$125,990	8.82
Carnegie Mellon	$1,115,740	$119,933			$1,115,740	$119,933	1.54
Southern Cal	$3,715,272	$117,915			$3,715,272	$117,915	2.35
Georgetown	$1,059,343	$80,614			$1,059,343	$80,614	1.36
New York	$2,161,800	$62,053			$2,161,800	$62,053	1.05
Rochester	$656,218	$55,168			$656,218	$55,168	2.08
Boston U	$1,101,386	$44,223			$1,101,386	$44,223	0.97
Miami	$409,271	$19,705			$409,271	$19,705	1.08

Note: From 2007 NACUBO Endowment Study, National Association of College and University Business Officers, Tables 48 and 54. And from Institutional Reports, Institute of Education Sciences, National Center for Education Statistics.

Both indicators also bridge the analytical gap between public and private institutions in terms of their wealth capacity, and relationship of such assets to ranking indicators would be useful for gauging competitiveness (Michael, 2005; Swensen, 2000; Zumeta, 2001).

Table 19 demonstrates how the pseudo endowment enables the comparison of financial strength of public versus private institutions. Applying a 4.6% weighted average for endowment spending, as extrapolated from the NACUBO Endowment Study (2007), state funding was translated to the Pseudo Endowment to reflect the assets supporting the institutions. By adding Endowment and Pseudo Endowment together and dividing by FTE Student, two comparison indicators are configured to enable public and private institutions to compare their total asset base and assets per student. Comparing Table 19 to Swensen's results in Table 2, public institutions begin to show a presence within the higher quartiles of institutions in terms of these assets, both in total and per FTE Student. Substantial endowment assets would be required to provide the equivalent of state support. Further, the Endowment Expenditure Ratio when using both Endowment and Pseudo Endowment increases quite substantially for the public institutions. The implication becomes that the assets enabling public institutions to operate are comparable to many private institutions' assets.

In the case of Howard University, federal funding in support of operations is calculated in terms of the pseudo endowment assets necessary to generate such a level of funding, given the spending rates reported in the NACUBO Endowment Study (2008). Howard University's federal support of operations generated a pseudo endowment of $4.4 billion. This approach repositions HU much higher in terms of the endowment-type assets per FTE Student. Similarly, the University of Arkansas and University of

Delaware are present in the table in terms of their endowment assets per FTE Student. Other nuances include state support provided to private institutions, such as Johns Hopkins University's Sellinger Grant for operations received annually from the State of Maryland. This reflects pseudo endowment assets that Swensen's research would not have recognized. Table 19 is based on the premise that public and private institutions can be compared in terms of endowment-type assets supporting increased financial resources improving ranking indicators.

Sixth, the alert and agile institutional leaders should encourage the state to continue a Private Donation Incentive Program. This incentive program was directed at diversification of funding sources, sustaining institutional operations, and encouraging high performance (Light, 2005; Zumeta, 2001). Despite a potential lack in state match obligations, such incentives may increase the wealth of the institution and further professionalize the advancement function.

This research found no indication of supplanting of state funds with private giving while controlling for the Private Donation Incentive Program. A progressive state match would serve to leverage state funding with private giving initiatives while providing increased incentives to small institutions and HBIs. This would help incentive the development of a stable and legitimate advancement infrastructure that would increase fundraising. While the specific aspects of this program were beyond this research, efforts to leverage state funding to expand institutional wealth, particularly in a period of fiscal constraint, could increase awareness of higher education within the philanthropic community and institutionalize advancement efforts into the future.

In summary, the model, derived as an outcome of this research, recognizes the need to understand that private giving is related to state funding, although private giving neither leverages nor supplants state funds in these cases. Further, there is a need to formally develop a supplanting theory and undertake a closer examination of supplanting of state funding through other actions. Focusing on the Pillars of High Performance framework, university leaders will have increased alertness of this issue and will be able to measure the changes in state funding that occur year to year and during funding deliberations. The aligned institution's focus on the triad of indicators, selecting ranking indicators, such as Alumni Donors or Research Funding, that enhance mission, demonstrate a relationship to competitiveness and productivity and may leverage private giving. The results of this research are limited in determining the predictive nature of ranking indicators, but several implications from the analyses and the literature support this model for the high performing institution.

The adaptability of the institution's leadership is supported by monitoring broad-based actions of the state in the context of its effect on the institution. Understanding ongoing fundraising production, state support of the institution, along with the overall state economy may enhance the ability to proactively respond to state funding changes. These six recommendations have created a model that draws from this research and should assist in maintaining high performance at the institution (Light, 2005).

Recommendations for Future Research

The effort to move this research forward is contained within the following five recommendations. Recommendation one is to expand this research to other populations. Using data from other states with different state higher education oversight infrastructure

would be useful, particularly if different regions of the country could be incorporated. This may allow for analyzing the relationship created by other economic and political variables (Nettles & Cole, 2001).

Recommendation two integrates more specific questions in the attitudinal surveys of state legislative leaders to extract specific data indicating if supplanting of private giving for state funds was truly considered. This is based on Finding Three and that attitudinal surveys were not supported by this research (Ruppert, 1996, 2001). Asking for a specific time or event when a legislator considered supplanting of funds may clarify the meaning among policy makers and may affect the responses on the issue. Further, the funding deliberations involving the state's executive departments involved in budget formulation may also play a role in the funding decision process that has an effect of supplanting state revenues. A mixed methods approach to such research may successfully address both the attitudinal issues and financial actions.

Recommendation three supports the continued development and refinement of a formalized supplanting theory in public administration. There was a distinction between supplanting and zero sum theory and withdrawal of funds (Johnstone, 1993; Thurow, 1987). Such a theory would enhance public choice theory and public finance discussion (Ostrom & Ostrom, 1971).

Recommendation four involves further testing and development of the pseudo endowment measure. Applying the measure to a national data set could enable the integration of public institutions into Swensen (2000) study of endowments' relationship to rankings and ranking indicators. Further, this would add a perspective to institutional wealth that may enhance decision making.

The final recommendation follows from the findings that did not provide a statistically significant relationship of state funding being supplanted by private giving. These findings should increase the interest in expanding fundraising. This recommendation applies to research on the fundraising and development office infrastructure. Such research would examine the processes and funding necessary to create a competitive operation that effectively maximizes private giving in a public institution while enhancing state funding.

Conclusion

This study examined the relationship between and among the changes in the level of institutional fundraising and changes in state funding at Maryland public four-year institutions retrospectively over a ten year period. As more state institutions have become increasingly engaged in fundraising, the question of the impact of private giving success on changes in state funding became more apparent in the context of increased fiscal constraint and as a mechanism to help ensure institutional competitiveness. Anecdotal theory and attitudinal surveys indicated that public funding was reduced when private giving increased (Johnstone, 1993; Ruppert, 2001). This study did not confirm such theory and survey findings, although a predictive relationship was found between Total Private Giving and State Funding per FTE Student.

The data, extracted from state and national databases for 13 public institutions in the State of Maryland, found several statistically significant relationships and trends among the descriptive statistics. Following the interpretation of the findings, an operational model comprised of five recommendations was presented. The interpretation and recommendations support the high performance institutional assessment operation.

References

Allison, G. (1971). *Essence of decision: explaining the Cuban missile crisis*. Boston: Little, Brown and Company.

American Institute of Certified Public Accountants. (2002). *AICPA Audit and Accounting Guide: Not-For-Profit Organizations.* New York: AICPA, Inc.

Arenson, K. (2008). When strings are attached, quirky gifts can limit universities. *New York Times*. Retrieved April 13, 2008 from http://www.nytimes.com/2008/04/13/education/13endow.html?ref=education

Association of Community College Trustees. (2004). *Community college environmental scanning initiative*. 2004. Washington, DC: Association of Community College Trustees.

Association of Governing Boards of Universities and Colleges. (2008). *State Matching Funds are Boosting Private Giving to Public Higher Education.* Retrieved April 1, 2008 from http://www.agb.org/wmspage.cfm?parm1=1490

Babbidge, H., & Rosenzweig, R. (1962). *The federal interest in higher education*. New York: McGraw-Hill.

Baker, G. (1998). *Managing change: A model for community college leaders.* Washington, DC: American Association of Community Colleges. (ERIC Document Reproduction Service No. ED417775).

Barton, R. (2002). Homing in: Philanthropies with a singular focus. Foundations for Change: School District Philanthropies. *Portland, OR: Northwest Regional Educational Laboratory*. Retrieved on November 26, 2006 from http://www.nwrel.org/nwedu/09-02/change.asp

Blumenstyk, G. (2003, March 21). Donations to colleges decline for the first time since 1988. *Chronicle of Higher Education*, *49*(28), A29. Retrieved March 14, 2007 from http://chronicle.com/weekly/v49/i28/28a02901.htm

Bowen, H. (1980). *The costs of higher education: How much do colleges and universities spend per student and how much should they spend?* San Francisco: Jossey-Bass Publishers.

Birnbaum, R. (1988). *How colleges work: The cybernetics of academic organization and leadership.* San Francisco: Jossey-Bass Publishers.

Bish, R., & Ostrom, V. (1979). *Understanding urban government: Metropolitan reform reconsidered*. Washington, DC: American Enterprise Institute.

Bogue, E., & Hall, K. (2003). Quality and accountability in higher education: Improving policy, enhancing performance. Westport, CT: Praeger.

Bowen, W., & Breneman, D. (1993). *Student aid: Price discount or educational investment*. Brookings Review, Winter (11), 28-31.

Breneman, D. (1997). The privatization of public universities: Mistake or model? *Chronicle of Higher Education*. Retrieved June 23, 2006 from http://chronicle.com/che-data/articles.dir/art-43.dir/issue-26.dir/26b00401.htm

Breneman, D., & Nelson, S. (1981). *Financing community colleges: An economic perspective*. Washington, DC: Brookings Institution.

Brennan, G., & Buchanan, J. (1985). *The reason of rules: Constitutional political economy*. Cambridge: Cambridge University Press.

Brewer, D., Gates, S., & Goldman, C. (2006). *In pursuit of prestige: Strategy and competition in U.S. higher education*. New Brunswick, NJ: Transaction Publisher.

Brittingham, B., & Pezzullo, T. (1990). *Campus green: Fund raising in higher education*. ASHE-ERIC Higher Education Report No. 1. Washington, DC: Graduate School of Education and Human Development, George Washington University. (ERIC Document Reproduction Service No. ED321706).

Brubacher, J., & Rudy, W. (1997). *Higher education in transition: A history of American colleges and universities* (4th ed.). New Brunswick, NJ: Transaction Publishers.

Buchanan, J. (1968). *Demand and supply of public goods*. Chicago, IL: Rand McNally.

Buchanan, J., & Tullock, G. (1967). *The calculus of consent*. Ann Arbor, MI: University of Michigan Press.

Bureau of Labor Statistics. (2009). Consumer price index of all urban areas. Economic Analysis and Information Branch. Retrieved on April 7, 2009 from http://www.bls.gov/ro3/fax_9125.pdf

Burke, J. (2005). *Achieving accountability in higher education: Balancing public, academic, and market demands*. San Francisco: Jossey-Bass.

Burnett, C. (2006, Feb 15). Memo to Maryland Higher Education Commission. Retrieved on January 21, 2009 from http://www.mhec.state.md.us/higherEd/about/Meetings/CommissionMeetings/2-15-06/FY%202007%20Governor's%20Budget%20Overview.pdf

Carnegie Commission on Higher Education. (1972). *The more effective use of resources: An imperative for higher education*. New York: McGraw Hill.

Carnegie Foundation for the Advancement of Teaching. (2005). *Basic Classification: Distribution of institutions and enrollments by classification category*. Retrieved

December 3, 2006 from http://www.carnegiefoundation.org/classifications /index.asp? key=805

Cash, J. (2001). *Private fundraising for public higher education: The first 15 years*. Lyndhurst, NJ: Marts & Lundy.

Center for Community College Policy. (2000, November). *State funding for community colleges: A 50-state survey*. Denver, CO: Education Commission of the States.

Cheslock, J., & Gianneschi, M. (2008, Mar/Apr). Replacing state appropriations with alternative revenue sources: The case of voluntary support. *The Journal of Higher Education*, 79(2), 208-229.

Clark, B. (2002). University transformation: primary pathways to university autonomy and achievement. In S. Brint (Ed.), *The future of the city of intellect: The changing American university.* Palo Alto, CA: Stanford University Press, 322-42.

Clotfelter, C. (1996). *Buying the best: Cost escalation in elite higher education*. Princeton: Princeton University Press.

Cohen, A. (1998). *The shaping of American higher education: Emergence and growth of the contemporary system*. San Francisco: Jossey-Bass.

Cohen, J., Cohen, P., West, S., & Aiken, L. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences, third edition*. Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.

College Board. (2007). *2007 trends in higher education series: Institutional finance*. Retrieved October 21, 2007 from http://www.collegeboard.com/prod_downloads/about/ news_info/ trends/institutiona_finance.pdf

Collins, J. (2005). *Good to great and the social sectors*. Boulder, CO: Jim Collins.

Council for Aid to Education. (2007). *2006 Voluntary Support of Education*. New York: Council for Advancement and Support of Education.

Cunningham, B., & Cochi-Ficano, C. (2002, Summer). The determinants of donative revenue flows from alumni of higher education: An empirical inquiry. *The Journal of Human Resources, 37(3)*, 540-569.

Creswell, J. (2003). *Research design. Qualitative, quantitative and mixed methods approaches*. Thousand Oaks, CA: Sage.

Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process.* Thousand Oaks, CA: SAGE.

Curti, M. & Nash, R. (1965). *Philanthropy in the shaping of American Higher Education*. New Brunswick, NJ: Rutgers University Press.

Dee, T. (2004, Jan). Lotteries, litigation, and education finance. *Southern Economic Journal*, *70*(3), 584-599.

Dickeson, R. (2006). Issue paper: Frequently asked questions about college costs. *Proceedings of the Secretary of Education's Commission on the Future of Higher Education, Issue Paper Six*. Retrieved December 5, 2006 from http://www.ed.gov/about/bdscomm/list/ hiedfuture/reports/dickeson2.pdf

Dogramaci, I. (1993). Sources of revenue. P. Altbach & D. Johnstone (Eds.), *The funding of higher education: International perspectives.* New York: Garland, 71-82.

Dothan, M., & Thompson, F. (2007, December). *A better budget rule*. Presented at the Association for Budgeting and Financial Management Conference, Atlanta, GA.

Dowd, A., & Grant, J. (2006, Winter). Equity and efficiency of community college appropriations: The role of local financing. *The Review of Higher Education, 29(2),* 167-194.

Duderstadt, J. (2006, Dec 5). Testimony to the U.S. Senate Finance Committee. Washington, D.C.

Education Article, § 11-105(g)(4), Annotated Code of Maryland (2008). Retrieved February 22, 2008 from http://www.michie.com/maryland/lpext.dll?f=templates&fn=main-h.htm&cp=mdcode

Education Article, § 11-105(i)(5)(ii), Annotated Code of Maryland (2008). Retrieved February 22, 2008 from http://www.michie.com/maryland/lpext.dll ?f=templates&fn=main-h.htm&cp=mdcode

Education Article, § 17 Subtitle 3, Annotated Code of Maryland (2008). Retrieved February 22, 2008 from http://www.michie.com/maryland/lpext.dl l?f=templates&fn=main-h.htm&cp=mdcode

Fisman, R., & Hubbard, G. (2002). *Endowments, governance, and the nonprofit form*. Working paper. Columbia University and National Bureau of Economic Research.

Fitzgerald, S. (2004). *Calculating the bottom line: Measuring operating performance is critical to credit assessment of higher education and not-for-profit organizations* (no. 88578). New York: Moody's Investors Service.

Gentry, W. (2002). Debt, investment and endowment accumulation: The case of not-for-profit hospitals. *The Journal of Health Economics, 21*, 845-872.

Goldsmith, M. (2007). *What got you here won't get you there*. New York, NY: Hyperion Books.

Goldstein, L., & Budak, S. (2007). *Financial accounting and reporting manual for higher education*. Retrieved March 30, 2008 from http://efarm.nacubonet.org/nacubo/gateway.dll?f=templates&fn=default.htm&vid=nacubo:efarm

Gose, B. (2006). At a growing number of community colleges, fundraising is no longer optional. *The Chronicle of Higher Education, 53(10),* B5. Retrieved November 12, 2006 from http://chronicle.com/weekly/v53/i10/10b00501.htm

Governmental Accounting Standards Board, (1999), Statement no. 35: *Basic financial statements—and management's discussion and analysis—for public colleges and universities—an amendment of GASB Statement no. 34.* Retrieved April 19, 2007 from http://www.gasb.org/pub/index.html

Gravelle, J. (2007). Tax issues and university endowments. *Washington, DC: Congressional Research Service*. Retrieved April 2, 2008 from http://grassley.senate.gov/public/releases/2008/01142008.pdf

Grubb, W., & Lazerson, M. (2004). *The education gospel: The economic power of schooling.* Cambridge, MA: Harvard University Press.

Hansmann, H. (1990, Jan). Why do universities have endowments? *The Journal of Legal Studies, 19(1),* 3-42.

Haskins, C. (1957). *The rise of universities*. New York: Cornell University Press.

Hatch, M. (2006). *Organization Theory* (2nd ed.). Oxford, UK: Oxford University Press.

Hearn, J. (2003). *Diversifying campus revenue streams: Opportunities and risks.* Washington, DC: American Council on Education.

Hearn, J. (2006). Enhancing institutional revenues: Constraints, possibilities and the question of values. R. Clark & M. d'Ambrosio (Eds.) *The new balancing act in the business of higher education.* Northampton, MA: Edward Elgar.

Heinrich, C. (2006, Spring). Book review: The four pillars of high performance. *Journal of Policy Analysis and Management*, 25(20< 499-503.

Heller, D. (2006). *Access and opportunity in American higher education: The role of the states*. Center for the Study of Higher Education. Retrieved March 26, 2006 from http://www.ed.psu.edu/cshe/current.html

Herber, B. (1983). *Modern public finance*. Homewood, Illinois: Richard D. Irwin, Inc.

Higher Education Research Institute. (2007, April). The American freshman: Forty-year trends, 1966-2006. Los Angeles, CA: Higher Education Research Institute.

Hinkle, D., Wiersma, W., & Jurs, S. (2003). Applied statistics for the behavioral sciences. Boston, MA: Houghton Mifflin Company.

Hirsch, W. & L. Weber (eds.) (1999). Financing universities through nontraditional revenue sources: Opportunities and threats. *Challenges facing higher education at the millennium.* Phoenix: Oryx Press, 75-84.

Hollowell, D., Middaugh, M., & Sibolski, E. (2006). *Integrating higher education planning and assessment: A practical guide.* Washington, DC: Society for College and University Planning.

Honeyman, D., Williams, M., Wattenbarger, J. (1991). *Community college financing.* Washington, DC: American Association of Community Colleges.

Hoover, E. (2007, June 29). Annapolis group challenges U.S. News rankings. *Chronicle of Higher Education,* 53(43), A30.

Hou, Y. (2006, Sept/Oct). Budgeting for fiscal stability over the business cycle: A countercyclical fiscal policy and the multiyear perspective on budgeting. *Public Administration Review* 66(5), 730-741.

Israel, C., & Kihl, B. (2005). Using strategic planning to transform a budgeting process. S. Katsinas & J. Palmer (Eds.), *New directions for community colleges: Sustaining financial support for community colleges, 132.* San Francisco: Jossey-Bass, 77-86.

Jackson, K. & Glass, J. (2000). Emerging trends and critical issues affecting private fund raising among community colleges. *Community College Journal of Research and Practice, 24*(9), 739-755.

Jenkins, L., & Glass, J. (1999). Inception, growth, and development of a community college foundation: Lessons to be learned. *Community College Journal of Research and Practice, 23*(6), 593-612.

Jin, G., & Whalley, A. (2007). *The power of information: Do rankings affect the public finance of higher education?* Retrieved February 25, 2008 from http://www.glue.umd.edu/%7Eginger/research/Jin-Whalley-122107-full.pdf

Johnstone, D. (1993). The Costs of Higher Education: Worldwide Issues and Trends for the 1990s, P. Altbach & D. Johnstone (Eds.), *The funding of higher education: International perspectives.* New York: Garland, 3-24.

Johnstone, D. (1996). *The high tuition-high aid model of public higher education finance: The case against.* Monograph of the National Association of System Heads.

Retrieved October 31, 2006 from http://www.gse.buffalo.edu/FAS/Johnston/HIGHAID.htm

Johnstone, D. (2002). Challenges of financial austerity: Imperatives and limitations of revenue diversification in higher education. *Welsh Journal of Education, 11(1),* 18-36.

Johnstone, D. (2003, Sept 15). *The fiscal future of higher education: Austerity, opportunity, and accessibility*. Presented at Pullias Lecture, Rosier Graduate School of Education, University of Southern California.

Johnstone, D. (2005). Financing higher education: Who should pay? P. Altbach, R. Berdahl, & P. Gumport (Eds.), *American higher education in the twenty-first century: Social, political, and economic challenges*, 369-392. Baltimore: Johns Hopkins University Press.

Jones, C., & Roberts, A. (2006). Management of financial information in charitable organizations: The case of joint-cost allocations. *The Accounting Review, 81(1)*, 159-178.

Jones, D. (2003, April). Financing in sync: Aligning fiscal policy with state objectives. *Policies in sync: Appropriations, tuition, and financial aid for higher education*. Boulder, CO: Western Interstate Commission for Higher Education, 5-22.

Kane, T., Orszag, P., & Gunter, D. (2003). *State fiscal constraints and higher education spending: The role of Medicaid and the business cycle*. Washington, DC: Brookings Institution.

Katsinas, S. (2005). Increased competition for scarce state dollars. S. Katsinas & J. Palmer (Eds.), *New directions for community colleges: Sustaining financial support for community colleges, 132.* San Francisco: Jossey-Bass, 19-32.

Keener, B. (1982). The foundation's role in resource development. In W. Sharron, Jr. (Ed.), *The community college foundation*. Washington, DC: National Center for Resource Development, 3-17.

Kennedy, M., Capassakis, E. and Wagman, R. (2002). *Guide to Charitable Giving*. Hoboken, NJ: Johnson Wiley & Sons, Inc.

Kerr, C. (2001). *The uses of the university* (5th ed.). Cambridge, MA: Harvard University Press.

Kingma, B. (1989, Oct). An accurate measurement of the crowd-out effect, income effect, and price effect for charitable contributions. *The Journal of Political Economy, 97*(5), 1197-1207.

Kirwin, B. (2006, November 2). *Institutional vision with policy makers and the public's interest*. Presentation at TIAA-CREF Institute on Transformational Change in Higher Education, New York.

Knapp, L., Kelly, J., Whitmore, R., Wu, S., Gallego, L., & Broyles, S. (2002). Enrollment in postsecondary institutions, Fall 2000 and financial statistics, fiscal year 2000. *Education Statistics Quarterly, 4*(4). NCES publication 2002-212. Retrieved April 14, 2007 from http://nces.ed.gov/programs/quarterly/vol_4/4_4/q4_6.asp

Koertge, N. (1999, October). The zero-sum assumption and the symmetry thesis. *Social Studies of Science, 29*(5), 777-784.

Krajewski, L., & Ritzman, L. (1999). Operations management: Strategy and analysis *(5th ed.). New York: Addison-Wesley Publishing Company.*

Lauth, T., & Robbins, M. (2002, Fall). The Georgia lottery and state appropriations for education: Substitution or additional funding? *Public Budgeting & Finance, 22*(3), *89-100.*

Leslie, L. (1983). Factors accounting for variations over time in voluntary support for colleges and universities. *Journal of Educational Finance, 9*, 213-25.

Levy, F. (2007, Spring). Economics of education: Basic issues and structure. Available at http://ocw.mit.edu/NR/rdonlyres/Urban-Studies-and-Planning/11-126JSpring-2007/61F5EDD4-A74F-4A42-B097-38EF695F0895/0/lecture23.pdf

Light, P. (2005). *The four pillars of high performance: How robust organizations achieve extraordinary results*. New York: McGraw-Hill.

Light, R., Singer, J., & Willett, J. (1990). *By design: Planning research on higher education.* Boston, MA: Harvard University Press.

Lindblom, C. (1959). The science of muddling through. *Public Administration Review, 19,* 79-88.

Martin, S. (2006). Richard Hug: The governor's money man. *Bay Weekly*. Retrieved May 8, 2006, from http://www.bayweekly.com/year06/issuexiv2/jobxiv2.html

Maryland Department of Legislative Services. (2007, Jan). *Overview of higher education funding in Maryland*. Annapolis, MD: DLS Office of Policy Analysis.

Maryland Higher Education Commission. (2008). *Presentation to the House Appropriations Subcommittee on Education and Economic Development*. Retrieved April 25, 2008 from

http://www.mhec.state.md.us/pressroom/LegislativeTestimony/ FY08MHEC--House.pdf

Maryland Higher Education Commission . (2007, June). Trends in general fund support per FTE, Maryland public four-year institutions FY1996 - FY2005. Retrieve on January 19, 2009 from http://www.mhec.state.md.us/publications/research/ Annual Publications/2007TrendBook.pdf

Maryland Higher Education Commission. (2004). *Funding Guidelines Peer Performance Analysis*. Retrieved May 26, 2008 from http://www.mhec.state.md.us/publications /finance/PeerPerformanceAnalysis2004.pdf

Maryland Higher Education Commission Division of Finance Policy. (2003). *Report evaluating the methodology used to set funding guidelines: As requested by the Report of the Chairmen of the Senate Budget and Taxation Committee and House Appropriations Committee*. Retrieved May 16, 2008 from http://www.mhec.state.md.us/publications/finance/Report%20Evaluating%20the %20Methodology%20Used%20to%20Set%20Funding%20Guidelines.pdf

Maryland Legislative Services. (2006). Operating budget analysis documents – fiscal year 2007, Morgan State University R13M00. Retrieved on April 9, 2009 from http://mlis.state.md.us/2006rs/budget_docs/All/Operating/R13M00_-_Morgan_State_University.pdf

Maryland Legislative Services. (2004). Operating budget analysis documents – fiscal year 2004, University of Maryland, College Park R30B22. Retrieved on December 27, 2008 from

http://mlis.state.md.us/2003rs/budget_docs/All/Operating/R30B22_-_University_of_Maryland,_College_Park.pdf

Maryland State Data Center. (2008). Changing components of personal income in Maryland. Retrieved July 29, 2008 from http://www.mdp.state.md.us/msdc/bea/Compchg/pincsumm.pdf

Massy, W. (1996). Reengineering resource allocation systems. In W. Massy (Ed.), *Resource allocation in higher education.* Ann Arbor, MI: University of Michigan Press, 15-48.

Massy, W. (2003). *Honoring the trust: Quality and cost containment in higher education*. Bolton, MA: Anker Publishing Company.

McGuinness, A. (2005). The states and higher education. P. Altbach, R. Berdahl, & P. Gumport (Eds.), *American higher education in the twenty-first century: Social, political, and economic challenges*, 198-225. Baltimore: Johns Hopkins University Press.

Mertens, D. (2005). *Research and evaluation in education and psychology*. Thousand Oaks, CA: Sage Publications, Inc., 1-42.

Michael, S. (2005). The cost of excellence: The financial implications of institutional rankings. *The International Journal of Educational Management*, *19*(5), 365-382.

Miller, G. (1991). *Government financial management theory*. New York: Marcel Dekker, Inc.

Moody's Investors Service. (2002, September). *Moody's rating approach for private colleges and universities.* New York: Moody's Investors Service Global Credit Research.

Moody's Investors Service. (2002, December). *Moody's rating methodology for U.S. public colleges and universities.* New York: Moody's Investors Service Global Credit Research.

Morgan, G. (2006). *Images of Organization*. Thousand Oaks, CA: Sage Publications.

Mumper, M. (2001). State efforts to keep public colleges affordable in the face of fiscal stress. M. Paulsen & J. Smart (Eds.), *The finance of higher education: Theory, research, policy, and practice*. New York: Agathon Press, 321-354.

Museus, S. (2005, November). *Borrowing for success in higher education*. Paper presented at the 2005 Association for the Study of Higher Education Conference, Philadelphia, PA.

NACUBO. (2006). NACUBO endowment study. Retrieved on December 30, 2008 from http://www.endowstudy.org/nacubo/survey/report2006.jsp

National Association of College and University Business Officers. (2008). *2007 NACUBO Endowment Study.* Retrieved February 2, 2008 from http://www.nacubo.org/x2376.xml

National Center for Education Statistics, Institute of Education Sciences. (2002). *Digest of Education Statistics*. Retrieved April 17, 2007 from http://nces.ed.gov/programs/digest/d02/dt312.asp

Nettles, M., & Cole, J. (2001). *A study in tension: State assessment and public colleges and universities.* In D. Heller (Ed.), The states and public higher education policy: Affordability, access, and accountability. Baltimore: Johns Hopkins Press, 198-218.

Office of Management and Budget. (2006). *Major savings and reforms in the President's 2007 budget.* Retrieved December 4, 2006 from http://www.whitehouse.gov/omb/budget/fy2007/pdf/savings.pdf

Osborne, D., & Gaebler, T. (1992). *Reinventing government: How the entrepreneurial spirit is transforming the public sector*. New York, NY: Penguin Group.

Oster, S. (2001). The effect of university endowment growth on giving: Is there evidence of crowding out? *Working Paper Series Economics/Strategy* (10). New Haven, CT: Yale School of Management.

Ostrom, V. (1987, Spring). Buchanan and the constitutional bases of political decision making. *PS, Political Science, 20*(2), 242-246.

Ostrom, V., & Ostrom, E. (1971, Mar – Apr). Public choice: A different approach to the study of public administration. *Public Administration Review, 31*(2), 203-216.

Palmer, J. (2005). Literature on fiscal support for community college. S. Katsinas & J. Palmer (Eds.), *New directions for community colleges: Sustaining financial support for community colleges*, 132. San Francisco: Jossey-Bass.

Palmer, J. (2007). *Grapevine: An annual compilation of data on state tax appropriations for the general operations of higher education*. Retrieved April 20, 2008 from http:// www.grapevine.ilstu.edu/index.shtml

Pope, D. (2006). *Reacting to rankings: Evidence from America's best hospitals and colleges.* Retrieved February 25, 2008 from http://opimweb.wharton.upenn.edu/people/faculty.cfm?id=155#

Rashall, H. (1886, October). The Origines of the University of Paris. The English Historical Review, 1(4), 639-676.

Redcliffe-Maud, L. (1967, October). Oxford and the collegiate university idea. *The Journal of Higher Education,* 38(7), 373-378.

Robison, S. (1982). The development of the two-year college foundation and techniques of success. In W. Sharron, Jr. (Ed.), *The community college foundation*. Washington, DC: American Association of Community and Junior Colleges, 31-48.

Ruppert, S. (1996). *The politics of remedy: State legislative views on higher education*. Washington, DC: National Education Association.

Ruppert, S. (2001). *Where do we go from here: State legislative views on higher education in the new millennium.* Washington, DC: National Education Association.

Russo, H. (2003). *Achieving Excellence in Fundraising*. San Francisco, CA: Jossey-Bass.

Ruch, R. (2001). *Higher Ed., Inc.: The rise of the for-profit university*. Baltimore: Johns Hopkins University Press.

Rudolph, F. (1990). *The American college and university: A history*. Athens, GA: University of Georgia Press.

Ryan, G., & Palmer, J. (2005). Leading the fundraising effort. S. Katsinas & J. Palmer (Eds.), *New directions for community colleges: Sustaining financial support for community colleges, 132.* San Francisco: Jossey-Bass, 43-48.

Salisbury University Foundation. (2006, December 14). $5.3 million bequest for SU nursing and other medically related professions. Retrieved on March 30, 2009 from http://www.salisbury.edu/newsevents/fullstoryview.asp?id=3132

Schneider, M. (2006, June 2). Endowments can become too much of a good thing. *The chronicle of higher education, 52(39)*, B18. Retrieved March 19, 2007 from http://chronicle.com/weekly/v52/i39/39b01801.htm

Simon, H. (1976). *Administrative behavior: A study of decision making processes in administrative organizations* (3rd ed.). New York: The Free Press.

Sowell, T. (1987). *A conflict of visions: Ideological origins of political struggles*. New York: William Murrow.

Stage, F. & Manning, K. (2003). What is your research approach? *Research in the college context.* New York: Brunner-Routledge, 19-31.

Stanley, R. (2004, Winter). Symposium on state-supported gaming in America: Part 1. *Journal of Public Budgeting, Accounting & Financial Management, 16*(4), 526-533.

State Government Article, § 2, Annotated Code of Maryland (2008). Retrieved May 26, 2008 from http://www.michie.com/maryland/lpext.dll?f=templates&fn=main-h.htm&cp=mdcode

Steiner, B. (1893). *The history of education in Connecticut*. Washington, DC: Government Printing Office. Retrieved February 5, 2008 from http://books.google.com/books?id=yusTAAAAIAAJ&printsec=titlepage&dq=elihu+yale+contribution&source=gbs_summary_r

Strauss, J., Curry, J., & Whalen, E. (1996). Revenue responsibility budgeting. In W. Massy (Ed.), *Resource allocation in higher education*. Ann Arbor, MI: University of Michigan Press, 163-190.

Strout, E. (2005). Building a fund-raising culture, one college at a time. *Chronicle of Higher Education, 51*(22), A25. Retrieved November 14, 2006 from http://chronicle.com/weekly/v51/i22/22a02501.htm

Swensen, D. (2000). *Pioneering portfolio management: An unconventional approach to institutional investment.* New York: The Free Press.

Taylor, B., & Massy, W. (1996). *Strategic indicators for higher education, 1996*. Princeton, NJ: Peterson's Publishing.

Taylor, B., Meyerson, J., Morrell, L., & Park, D. (1991). *Strategic analysis: Using comparative data to understand your institution.* Washington, DC: Association of Governing Boards.

Taylor, B., Meyerson, J., & Massy, W. (1993). *Strategic indicators for higher education*. Princeton, NJ: Peterson's Publishing.

Thelin, J. (2004). *A history of American higher education*. Baltimore: Johns Hopkins University Press.

Thurow, L. (1981). *The zero-sum society: Distribution and the possibilities for economic change*. New York: Penguin Books.

Thurow, L. (1987). *The zero-sum solution: A radical blue print for economic growth*. New York: Viking Books.

Thurow, L. (1996). *The future of capitalism*. New York: William Morrow and Company.

Times of London. (2007). *Times higher education awards 2007: The top 200 world universities.* Retrieved February 22, 2008 from http://www.timeshighereducation.co.uk/hybrid.asp?typeCode=144

Tinkelman, D. (1998, Fall). Differences in sensitivity of financial statement users of joint cost allocations: The case of nonprofit organizations. *Journal of Accounting, Auditing & Finance, 13*(4), 377-393.

Toutkoushian, R. & Hollis, P. (1998, Aug). Using panel data to examine legislative demand for higher education. *Education Economics*, 6(2), 141-157.

Walpert & Wolpoff. (2005, Aug 19) Towson University financial report, June 30, 2005 and 2004. Baltimore, MD; Walpert & Wolpoff.

Weick, K. (2001). *Making sense of the organization*. Malden, MA: Blackwell Publishers.

Weerts, D., & Ronca, J. (2006, Nov/Dec). Examining differences in state support for higher education: A comparative study of state appropriations for Research I universities. *The Journal of Higher Education,* 77(6), 935-967.

Winston, G. (2001). Subsidies, hierarchy and peers: The awkward economics of higher education. M. Paulsen & J. Smart (Eds.), *The finance of higher education: Theory, research, policy, and practice*. New York: Agathon Press, 25-42.

Worth, M. (2002). *New strategies for educational fund raising*. Westport, CT: Praeger Publishers.

Zemsky, R. (2008). *Lessons from the cost-quality curve*. Retrieved June 18, 2008 from http://chronicle.com/review/brainstorm/article/?id=532&utm_source=at&utm_medium=en

Zemsky, R., Wegner, G., & Massy, W. (2005). Today's colleges must be market smart and mission centered. The *Chronicle of Higher Education*, *51*(45), B6. Retrieved March 21, 2006 from http://chronicle.com/weekly/v51/i45/45b00601.htm

Zumeta, W. (2000). Accountability: Challenge for higher education. *The NEA 2000 almanac of higher education*, 57-71. Washington: NEA.

Zumeta, W. (2001). State policy and private higher education. M. Paulsen & J. Smart (Eds.), *The finance of higher education: Theory, research, policy, and practice*. New York: Agathon Press, 396-416.

Zumeta, W. (2004). State higher education: Demand imperatives meet structural, cyclical, and political constraints. E. St. John & M. Parsons (Eds.), *Public funding of higher education: Changing contexts and new rationales, 79-106.* Baltimore, MD: Johns Hopkins University Press.

Zusman, A. (2005). Challenges facing higher education in the twenty-first century. P. Altbach, R. Berdahl & P. Gumport (Eds.), *American higher education in the twenty-first century: Social, political, and economic challenges*, 115-162. Baltimore: Johns Hopkins University Press.

Appendix A

Maryland Public Four Year Colleges and Universities

Maryland Higher Education Commission - Coordinating Board

- Morgan State University, a historically black university
- St. Mary's College of Maryland, a public honors college

University System of Maryland

- Bowie State University, a historically black university
- Coppin State University, a historically black university
- Frostburg State University
- Salisbury University
- Towson University
- University of Baltimore
- University of Maryland Baltimore
- University of Maryland Baltimore County
- University of Maryland College Park, the flagship institution;
- University of Maryland Eastern Shore, a historically black university
- University of Maryland University College

Appendix B

Variables Schematic by Research Question

Research Question 1

Total Private Giving	=	Unrestricted + Restricted + Capital
Total Private Giving w/o PDIP (Private Donation Incentive Program eligible contributions)	=	Total Private Giving – PDIP eligible contributions
Total Private Giving minus PDIP	=	Total Private Giving w/o PDIP
Change in State Funding w/o PDIP Next FY	=	State Funding w/o PDIP FY+1 – Total State Funding w/o PDIP
State Funding w/o PDIP	=	State Unrestricted Operating Revenues FY+1
State Funding w/o PDIP funds Next FY	=	State Funding w/o PDIP
Endowment Market Value (MV)		
Endowment Expenditure Ratio	=	Endowment MV ÷ Budgeted Operating Expenditures
State Pseudo Endowment	=	State Funding ÷ 5%

Research Question 2

Total Private Giving w/o PDIP per Full Time Equivalent (FTE) Student	=	Total Private Giving w/o PDIP ÷ FTE Student
State Funding w/o PDIP per FTE Student	=	State Funding w/o PDIP ÷ FTE Student
Endowment per FTE Student	=	Endowment MV ÷ FTE Student
State Pseudo Endowment per FTE Student	=	State Pseudo Endowment ÷ FTE Student
Change in Total Private Giving per FTE Student	=	(Total Private Giving FY+1 – Total Private Giving FY) ÷ FTE Student
Change in State Funding per FTE Student	=	(State Funding FY+1 – State Funding FY) ÷ FTE Student
Change in State Funding w/o PDIP per FTE Student	=	State Funding w/o PDIP per FTE Student FY+1 – State Funding w/o PDIP per FTE Student FY
Change in State Funding w/o PDIP per FTE Student in 2 FYs	=	State Funding w/o PDIP per FTE Student FY+2 – State Funding w/o PDIP per FTE Student FY
Budgeted Expenditure per FTE Student	=	Budgeted Expenditure ÷ FTE Student
Capital Budget per FTE Student	=	Capital Budget ÷ FTE Student

Research Question 3

Total Private Giving	=	Total Private Giving w/o PDIP
Per Capita State Personal Income		
Institutional enrollment	=	FTE Student
State Funding per FTE Student	=	State Funding w/o PDIP per FTE Student
Change in Per Capita State Personal Income	=	Per Capital State Personal Income FY – Per Capita State Personal Income FY-1

Research Question 4

Total Private Giving	=	Total Private Giving w/o PDIP
Changes in State Capital and Operating Funding	=	(Capital Funding FY+1 + State Funding w/o PDIP FY+1) – (Capital Funding FY + State Funding w/o PDIP FY)

Research Question 5

Total Private Giving	=	Total Private Giving w/o PDIP
Institutional Wealth	=	Endowment MV + State Pseudo Endowment
SAT score	=	Institutional Mean SAT Score of entering freshmen
State Funding	=	State Funding w/o PDIP
Change in State Funding	=	State Funding w/o PDIP FY+1 – Total State Funding w/o PDIP
Average FT Faculty Salary	=	Institution Average Full Time Faculty Salary

Research Question 6

Previous Year State Funding	=	State Funding w/o PDIP FY-1
Number of Private Gifts	=	Alumni Donors
Research Expenditures	=	Budgeted Operating Expenditures for Research
State Pseudo Endowment	=	State Funding ÷ 5%
Alumni Donors	=	Annual level of alumni participation in giving
Research Expenditures per FTE Student	=	Research Expenditures ÷ FTE Student
Total Private Giving per FTE Student	=	Total Private Giving w/o PDIP ÷ FTE Student

Appendix C

Table C1

Descriptive Statistics – Total Private Giving with and without PDIP contributions by Fiscal Year (FY1997 – FY2006)

Fiscal Year		Total Giving - Ops + Capital	Total Private Giving Ops without PDIP contributions
FY1997	N	10	10
	Mean	$6,581,598.80	$6,581,598.80
	Median	$1,047,312.00	$1,047,312.00
	Std. Deviation	$10,695,637.958	$10,695,637.958
	Minimum	$554,813	$554,813
	Maximum	$32,113,470	$32,113,470
	Skewness	1.937	1.937
FY1998	N	10	10
	Mean	$8,292,839.70	$8,292,839.70
	Median	$1,861,145.00	$1,861,145.00
	Std. Deviation	$15,572,584.541	$15,572,584.541
	Minimum	$648,319	$648,319
	Maximum	$50,146,740	$50,146,740
	Skewness	2.634	2.634
FY1999	N	10	10
	Mean	$8,830,140.80	$8,298,398.10
	Median	$2,047,912.50	$1,740,790.50
	Std. Deviation	$15,157,527.042	$14,354,896.284
	Minimum	$915,335	$915,335
	Maximum	$48,550,320	$45,779,924
	Skewness	2.437	2.413
FY2000	N	11	11

Fiscal Year		Total Giving - Ops + Capital	Total Private Giving Ops without PDIP contributions
	Mean	$10,307,523.55	$9,766,545.82
	Median	$2,913,034.00	$2,526,779.00
	Std. Deviation	$16,716,292.128	$16,353,672.462
	Minimum	$325,528	$271,469
	Maximum	$54,652,688	$53,178,419
	Skewness	2.324	2.329
FY2001	N	11	11
	Mean	$12,982,390.36	$12,093,578.64
	Median	$2,382,006.00	$1,898,459.00
	Std. Deviation	$23,216,686.668	$23,375,120.229
	Minimum	$384,309	$245,576
	Maximum	$75,243,674	$75,243,674
	Skewness	2.400	2.456
FY2002	N	12	12
	Mean	$11,856,213.25	$11,380,607.67
	Median	$2,213,724.50	$1,920,125.00
	Std. Deviation	$21,592,758.983	$21,745,157.439
	Minimum	$613,347	$242,677
	Maximum	$70,643,640	$70,643,640
	Skewness	2.368	2.387
FY2003	N	12	12
	Mean	$12,968,530.33	$12,660,446.92
	Median	$3,112,844.00	$2,817,360.50
	Std. Deviation	$23,546,394.483	$23,681,560.384
	Minimum	$1,204,971	$399,383
	Maximum	$78,044,833	$78,044,833
	Skewness	2.449	2.445

Fiscal Year		Total Giving - Ops + Capital	Total Private Giving Ops without PDIP contributions
FY2004	N	13	13
	Mean	$11,840,607.92	$11,472,451.54
	Median	$2,712,568.00	$1,936,233.00
	Std. Deviation	$23,477,157.427	$23,554,518.627
	Minimum	$316,907	$228,684
	Maximum	$80,995,089	$80,995,089
	Skewness	2.637	2.663
FY2005	N	12	12
	Mean	$14,895,727.58	$14,884,165.08
	Median	$4,563,757.50	$4,563,757.50
	Std. Deviation	$25,871,327.463	$25,877,778.895
	Minimum	$484,160	$484,160
	Maximum	$84,044,504	$84,044,504
	Skewness	2.276	2.276
FY2006	N	12	12
	Mean	$14,368,124.42	$14,368,124.42
	Median	$3,233,676.50	$3,233,676.50
	Std. Deviation	$24,381,117.499	$24,381,117.499
	Minimum	$215,114	$215,114
	Maximum	$72,626,080	$72,626,080
	Skewness	1.983	1.983
Total	N	113	113
	Mean	$11,471,025.63	$11,157,979.95
	Median	$2,226,401.00	$1,998,000.00
	Std. Deviation	$20,250,471.068	$20,235,610.853
	Minimum	$215,114	$215,114
	Maximum	$84,044,504	$84,044,504

Fiscal Year		Total Giving - Ops + Capital	Total Private Giving Ops without PDIP contributions
	Skewness	2.301	2.324

Table C2

Descriptive Statistics - Total giving (with and without PDIP giving) by Fiscal Year and Institution Type (FY1997 – FY2006)

Fiscal Year	Carnegie Generic		Total Giving - Ops + Capital	Total Private Giving Ops without PDIP contributions
FY00	10	N	7	7
		Mean	$2,796,781	$2,495,770
		Std. Deviation	$2,783,443	$2,833,861
		Median	$2,175,219	$1,723,406
		Minimum	$325,528	$271,469
		Maximum	$8,621,441	$8,602,691
	20	N	1	1
		Mean	$2,875,391	$2,475,362
		Std. Deviation	.	.
		Median	$2,875,391	$2,475,362
		Minimum	$2,875,391	$2,475,362
		Maximum	$2,875,391	$2,475,362
	40	N	1	1
		Mean	$28,351,300	$27,383,618
		Std. Deviation	.	.
		Median	$28,351,300	$27,383,618
		Minimum	$28,351,300	$27,383,618
		Maximum	$28,351,300	$27,383,618
	50	N	2	2
		Mean	$31,289,300	$30,051,316
		Std. Deviation	$33,040,820	$32,706,663
		Median	$31,289,300	$30,051,316
		Minimum	$7,925,912	$6,924,212
		Maximum	$54,652,688	$53,178,419
	Total	N	11	11
		Mean	$10,307,524	$9,766,546
		Std. Deviation	$16,716,292	$16,353,672
		Median	$2,913,034	$2,526,779
		Minimum	$325,528	$271,469
		Maximum	$54,652,688	$53,178,419
FY01	10	N	7	7
		Mean	$1,859,789	$1,328,896
		Std. Deviation	$874,427	$726,987
		Median	$1,872,363	$1,617,085
		Minimum	$384,309	$245,576
		Maximum	$3,149,132	$2,079,745
	20	N	1	1

Fiscal Year	Carnegie Generic		Total Giving - Ops + Capital	Total Private Giving Ops without PDIP contributions
		Mean	$6,379,676	$4,569,508
		Std. Deviation	.	.
		Median	$6,379,676	$4,569,508
		Minimum	$6,379,676	$4,569,508
		Maximum	$6,379,676	$4,569,508
	40	N	1	1
		Mean	$37,369,357	$36,283,924
		Std. Deviation	.	.
		Median	$37,369,357	$36,283,924
		Minimum	$37,369,357	$36,283,924
		Maximum	$37,369,357	$36,283,924
	50	N	2	2
		Mean	$43,019,370	$41,436,831
		Std. Deviation	$45,572,048	$47,810,096
		Median	$43,019,370	$41,436,831
		Minimum	$10,795,065	$7,629,988
		Maximum	$75,243,674	$75,243,674
	Total	N	11	11
		Mean	$12,982,390	$12,093,579
		Std. Deviation	$23,216,687	$23,375,120
		Median	$2,382,006	$1,898,459
		Minimum	$384,309	$245,576
		Maximum	$75,243,674	$75,243,674
FY02	10	N	7	7
		Mean	$1,865,956	$1,546,531
		Std. Deviation	$1,152,939	$1,285,657
		Median	$1,671,884	$1,379,820
		Minimum	$613,347	$242,677
		Maximum	$4,164,778	$4,164,778
	20	N	1	1
		Mean	$5,255,053	$4,129,663
		Std. Deviation	.	.
		Median	$5,255,053	$4,129,663
		Minimum	$5,255,053	$4,129,663
		Maximum	$5,255,053	$4,129,663
	30	N	1	1
		Mean	$2,201,048	$2,201,048
		Std. Deviation	.	.
		Median	$2,201,048	$2,201,048
		Minimum	$2,201,048	$2,201,048
		Maximum	$2,201,048	$2,201,048
	40	N	1	1

Fiscal Year	Carnegie Generic		Total Giving - Ops + Capital	Total Private Giving Ops without PDIP contributions
		Mean	$40,622,237	$40,622,237
		Std. Deviation	.	.
		Median	$40,622,237	$40,622,237
		Minimum	$40,622,237	$40,622,237
		Maximum	$40,622,237	$40,622,237
	50	N	2	2
		Mean	$40,567,266	$39,394,314
		Std. Deviation	$42,534,416	$44,193,221
		Median	$40,567,266	$39,394,314
		Minimum	$10,490,892	$8,144,988
		Maximum	$70,643,640	$70,643,640
	Total	N	12	12
		Mean	$11,856,213	$11,380,608
		Std. Deviation	$21,592,759	$21,745,157
		Median	$2,213,725	$1,920,125
		Minimum	$613,347	$242,677
		Maximum	$70,643,640	$70,643,640
FY03	10	N	7	7
		Mean	$2,806,976	$2,432,649
		Std. Deviation	$1,862,836	$2,087,823
		Median	$2,074,978	$1,998,000
		Minimum	$1,204,971	$399,383
		Maximum	$6,682,318	$6,682,318
	20	N	1	1
		Mean	$4,741,925	$4,741,925
		Std. Deviation	.	.
		Median	$4,741,925	$4,741,925
		Minimum	$4,741,925	$4,741,925
		Maximum	$4,741,925	$4,741,925
	30	N	1	1
		Mean	$2,041,779	$2,041,779
		Std. Deviation	.	.
		Median	$2,041,779	$2,041,779
		Minimum	$2,041,779	$2,041,779
		Maximum	$2,041,779	$2,041,779
	40	N	1	1
		Mean	$43,114,195	$43,114,195
		Std. Deviation	.	.
		Median	$43,114,195	$43,114,195
		Minimum	$43,114,195	$43,114,195
		Maximum	$43,114,195	$43,114,195
	50	N	2	2

Fiscal Year	Carnegie Generic		Total Giving - Ops + Capital	Total Private Giving Ops without PDIP contributions
		Mean	$43,037,816	$42,499,460
		Std. Deviation	$49,507,398	$50,268,749
		Median	$43,037,816	$42,499,460
		Minimum	$8,030,799	$6,954,087
		Maximum	$78,044,833	$78,044,833
	Total	N	12	12
		Mean	$12,968,530	$12,660,447
		Std. Deviation	$23,546,394	$23,681,560
		Median	$3,112,844	$2,817,361
		Minimum	$1,204,971	$399,383
		Maximum	$78,044,833	$78,044,833
FY04	10	N	8	8
		Mean	$1,881,394	$1,718,721
		Std. Deviation	$1,149,573	$1,154,600
		Median	$1,652,930	$1,554,632
		Minimum	$316,907	$228,684
		Maximum	$3,485,651	$3,485,651
	20	N	1	1
		Mean	$3,941,032	$3,941,032
		Std. Deviation	.	.
		Median	$3,941,032	$3,941,032
		Minimum	$3,941,032	$3,941,032
		Maximum	$3,941,032	$3,941,032
	30	N	1	1
		Mean	$1,849,139	$1,849,139
		Std. Deviation	.	.
		Median	$1,849,139	$1,849,139
		Minimum	$1,849,139	$1,849,139
		Maximum	$1,849,139	$1,849,139
	40	N	1	1
		Mean	$41,264,779	$41,264,779
		Std. Deviation	.	.
		Median	$41,264,779	$41,264,779
		Minimum	$41,264,779	$41,264,779
		Maximum	$41,264,779	$41,264,779
	50	N	2	2
		Mean	$45,910,902	$44,168,575
		Std. Deviation	$49,616,533	$52,080,556
		Median	$45,910,902	$44,168,575
		Minimum	$10,826,715	$7,342,060
		Maximum	$80,995,089	$80,995,089
	Total	N	13	13

Fiscal Year	Carnegie Generic		Total Giving - Ops + Capital	Total Private Giving Ops without PDIP contributions
		Mean	$11,840,608	$11,472,452
		Std. Deviation	$23,477,157	$23,554,519
		Median	$2,712,568	$1,936,233
		Minimum	$316,907	$228,684
		Maximum	$80,995,089	$80,995,089
FY05	10	N	7	7
		Mean	$2,784,484	$2,764,663
		Std. Deviation	$2,652,738	$2,662,471
		Median	$1,725,395	$1,586,645
		Minimum	$484,160	$484,160
		Maximum	$7,018,460	$7,018,460
	20	N	1	1
		Mean	$4,052,031	$4,052,031
		Std. Deviation	.	.
		Median	$4,052,031	$4,052,031
		Minimum	$4,052,031	$4,052,031
		Maximum	$4,052,031	$4,052,031
	30	N	1	1
		Mean	$5,075,484	$5,075,484
		Std. Deviation	.	.
		Median	$5,075,484	$5,075,484
		Minimum	$5,075,484	$5,075,484
		Maximum	$5,075,484	$5,075,484
	40	N	1	1
		Mean	$50,922,611	$50,922,611
		Std. Deviation	.	.
		Median	$50,922,611	$50,922,611
		Minimum	$50,922,611	$50,922,611
		Maximum	$50,922,611	$50,922,611
	50	N	2	2
		Mean	$49,603,608	$49,603,608
		Std. Deviation	$48,706,783	$48,706,783
		Median	$49,603,608	$49,603,608
		Minimum	$15,162,711	$15,162,711
		Maximum	$84,044,504	$84,044,504
	Total	N	12	12
		Mean	$14,895,728	$14,884,165
		Std. Deviation	$25,871,327	$25,877,779
		Median	$4,563,758	$4,563,758
		Minimum	$484,160	$484,160
		Maximum	$84,044,504	$84,044,504
FY06	10	N	7	7

Fiscal Year	Carnegie Generic		Total Giving - Ops + Capital	Total Private Giving Ops without PDIP contributions
		Mean	$2,929,049	$2,929,049
		Std. Deviation	$3,973,499	$3,973,499
		Median	$1,196,482	$1,196,482
		Minimum	$215,114	$215,114
		Maximum	$10,852,011	$10,852,011
	20	N	1	1
		Mean	$3,925,030	$3,925,030
		Std. Deviation	.	.
		Median	$3,925,030	$3,925,030
		Minimum	$3,925,030	$3,925,030
		Maximum	$3,925,030	$3,925,030
	30	N	1	1
		Mean	$2,542,323	$2,542,323
		Std. Deviation	.	.
		Median	$2,542,323	$2,542,323
		Minimum	$2,542,323	$2,542,323
		Maximum	$2,542,323	$2,542,323
	40	N	1	1
		Mean	$57,782,200	$57,782,200
		Std. Deviation	.	.
		Median	$57,782,200	$57,782,200
		Minimum	$57,782,200	$57,782,200
		Maximum	$57,782,200	$57,782,200
	50	N	2	2
		Mean	$43,832,298	$43,832,298
		Std. Deviation	$40,720,558	$40,720,558
		Median	$43,832,298	$43,832,298
		Minimum	$15,038,515	$15,038,515
		Maximum	$72,626,080	$72,626,080
	Total	N	12	12
		Mean	$14,368,124	$14,368,124
		Std. Deviation	$24,381,117	$24,381,117
		Median	$3,233,677	$3,233,677
		Minimum	$215,114	$215,114
		Maximum	$72,626,080	$72,626,080
FY97	10	N	7	7
		Mean	$874,616	$874,616
		Std. Deviation	$301,326	$301,326
		Median	$784,811	$784,811
		Minimum	$554,813	$554,813
		Maximum	$1,329,605	$1,329,605
	40	N	1	1

Fiscal Year	Carnegie Generic		Total Giving - Ops + Capital	Total Private Giving Ops without PDIP contributions
		Mean	$18,545,950	$18,545,950
		Std. Deviation	.	.
		Median	$18,545,950	$18,545,950
		Minimum	$18,545,950	$18,545,950
		Maximum	$18,545,950	$18,545,950
	50	N	2	2
		Mean	$20,573,864	$20,573,864
		Std. Deviation	$16,319,468	$16,319,468
		Median	$20,573,864	$20,573,864
		Minimum	$9,034,257	$9,034,257
		Maximum	$32,113,470	$32,113,470
	Total	N	10	10
		Mean	$6,581,599	$6,581,599
		Std. Deviation	$10,695,638	$10,695,638
		Median	$1,047,312	$1,047,312
		Minimum	$554,813	$554,813
		Maximum	$32,113,470	$32,113,470
FY98	10	N	7	7
		Mean	$1,299,241	$1,299,241
		Std. Deviation	$557,156	$557,156
		Median	$1,082,668	$1,082,668
		Minimum	$648,319	$648,319
		Maximum	$1,904,172	$1,904,172
	40	N	1	1
		Mean	$17,381,980	$17,381,980
		Std. Deviation	.	.
		Median	$17,381,980	$17,381,980
		Minimum	$17,381,980	$17,381,980
		Maximum	$17,381,980	$17,381,980
	50	N	2	2
		Mean	$28,225,866	$28,225,866
		Std. Deviation	$31,000,797	$31,000,797
		Median	$28,225,866	$28,225,866
		Minimum	$6,304,992	$6,304,992
		Maximum	$50,146,740	$50,146,740
	Total	N	10	10
		Mean	$8,292,840	$8,292,840
		Std. Deviation	$15,572,585	$15,572,585
		Median	$1,861,145	$1,861,145
		Minimum	$648,319	$648,319
		Maximum	$50,146,740	$50,146,740
FY99	10	N	7	7

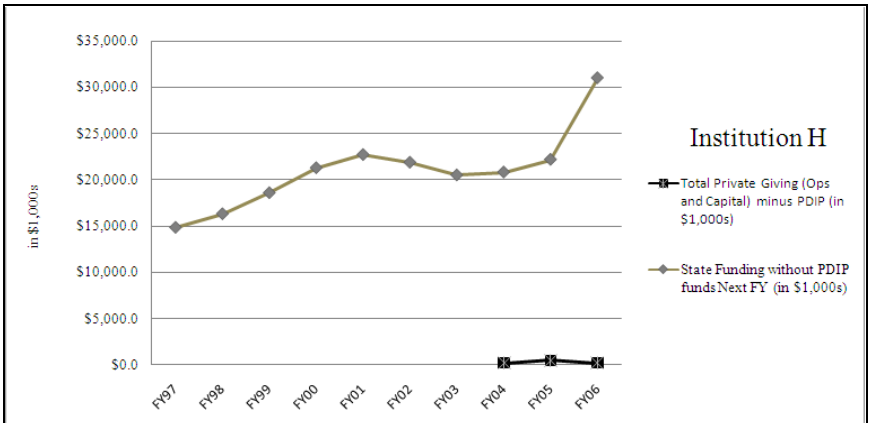
Fiscal Year	Carnegie Generic		Total Giving - Ops + Capital	Total Private Giving Ops without PDIP contributions
		Mean	$1,517,330	$1,338,827
		Std. Deviation	$542,056	$481,615
		Median	$1,178,551	$1,004,137
		Minimum	$915,335	$915,335
		Maximum	$2,168,921	$2,041,876
	40	N	1	1
		Mean	$19,473,299	$18,719,443
		Std. Deviation	.	.
		Median	$19,473,299	$18,719,443
		Minimum	$19,473,299	$18,719,443
		Maximum	$19,473,299	$18,719,443
	50	N	2	2
		Mean	$29,103,399	$27,446,376
		Std. Deviation	$27,502,099	$25,927,552
		Median	$29,103,399	$27,446,376
		Minimum	$9,656,478	$9,112,828
		Maximum	$48,550,320	$45,779,924
	Total	N	10	10
		Mean	$8,830,141	$8,298,398
		Std. Deviation	$15,157,527	$14,354,896
		Median	$2,047,913	$1,740,791
		Minimum	$915,335	$915,335
		Maximum	$48,550,320	$45,779,924
Total	10	N	71	71
		Mean	$2,059,024	$1,870,725
		Std. Deviation	$1,940,763	$1,965,378
		Median	$1,452,412	$1,306,808
		Minimum	$215,114	$215,114
		Maximum	$10,852,011	$10,852,011
	20	N	7	7
		Mean	$4,452,877	$3,976,364
		Std. Deviation	$1,127,633	$733,033
		Median	$4,052,031	$4,052,031
		Minimum	$2,875,391	$2,475,362
		Maximum	$6,379,676	$4,741,925
	30	N	5	5
		Mean	$2,741,955	$2,741,955
		Std. Deviation	$1,329,018	$1,329,018
		Median	$2,201,048	$2,201,048
		Minimum	$1,849,139	$1,849,139
		Maximum	$5,075,484	$5,075,484
	40	N	10	10

Fiscal Year	Carnegie Generic		Total Giving - Ops + Capital	Total Private Giving Ops without PDIP contributions
		Mean	$35,482,791	$35,202,094
		Std. Deviation	$14,059,210	$14,199,732
		Median	$38,995,797	$38,453,081
		Minimum	$17,381,980	$17,381,980
		Maximum	$57,782,200	$57,782,200
	50	N	20	20
		Mean	$37,516,369	$36,723,251
		Std. Deviation	$30,369,332	$30,842,879
		Median	$23,638,091	$23,638,091
		Minimum	$6,304,992	$6,304,992
		Maximum	$84,044,504	$84,044,504
	Total	N	113	113
		Mean	$11,471,026	$11,157,980
		Std. Deviation	$20,250,471	$20,235,611
		Median	$2,226,401	$1,998,000
		Minimum	$215,114	$215,114
		Maximum	$84,044,504	$84,044,504

Table C3

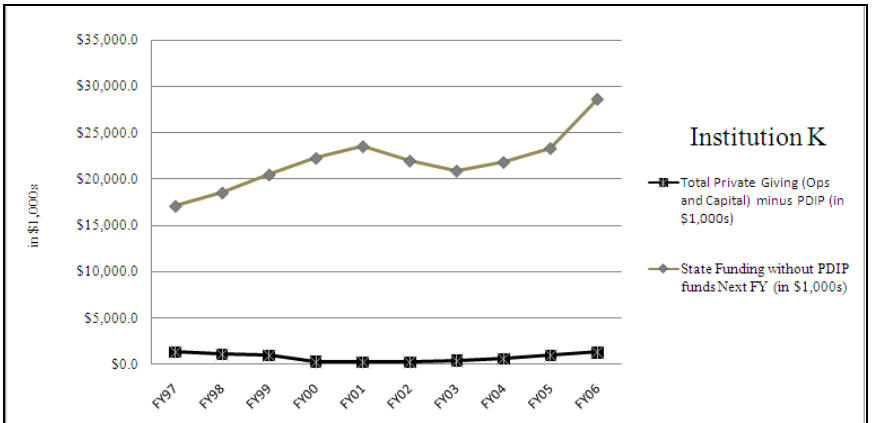
Institution Type Classification Code and Identity Letter

Institution Type	Classification Code	Identity Letter
Institution	Classification	Identity
Bowie	10	H
Coppin	10	G
Morgan	20	R
UMES	10	K
Frostburg	10	I
St. Mary's	30	S
Salisbury	10	T
Towson	10	N
UB	10	P
UMUC	10	L
UMB	40	Q
UMBC	50	M
UMCP	50	J



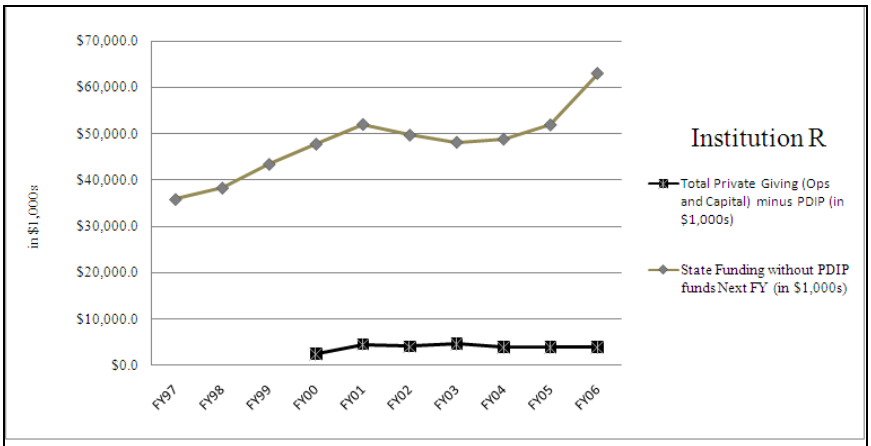
Institution H	FY	Total Private Giving (Ops and Capital) minus PDIP (in $1,000s)	State Funding without PDIP funds Next FY (in $1,000s)
	FY97		$14,861.6
	FY98		$16,329.7
	FY99		$18,603.7
	FY00		$21,296.6
	FY01		$22,722.5
	FY02		$21,885.4
	FY03		$20,517.8
	FY04	$228.7	$20,834.1
	FY05	$484.2	$22,199.5
	FY06	$215.1	$31,004.1

Figure C1. Total Private Giving and State Funding Institution (BSU, HBI)



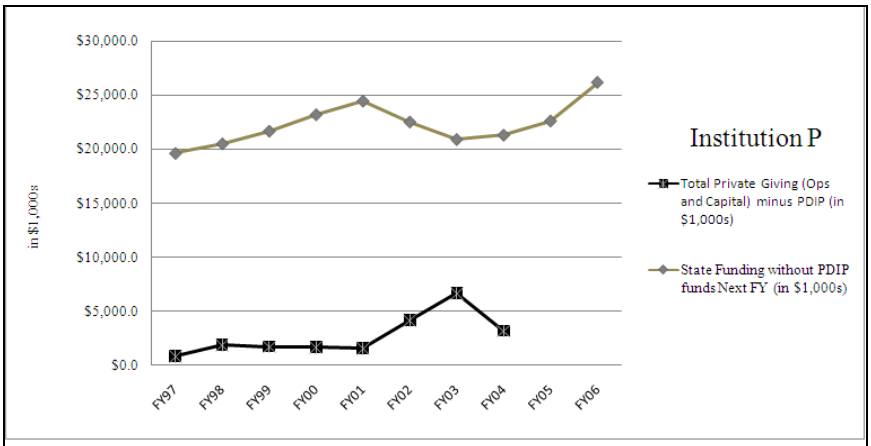
Institution K	FY	Total Private Giving (Ops and Capital) minus PDIP (in $1,000s)	State Funding without PDIP funds Next FY (in $1,000s)
	FY97	$1,329.6	$17,108.0
	FY98	$1,082.7	$18,537.1
	FY99	$932.2	$20,487.8
	FY00	$271.5	$22,264.6
	FY01	$245.6	$23,527.7
	FY02	$242.7	$21,975.0
	FY03	$399.4	$20,898.1
	FY04	$573.7	$21,829.5
	FY05	$964.6	$23,321.7
	FY06	$1,306.8	$28,616.1

Figure C2. Total Private Giving and State Funding Institution (UMES, HBI)



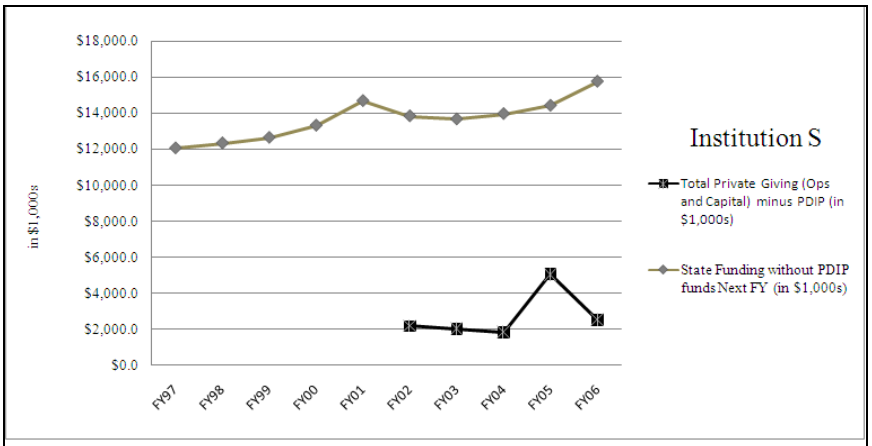
Institution R	FY	Total Private Giving (Ops and Capital) minus PDIP (in $1,000s)	State Funding without PDIP funds Next FY (in $1,000s)
	FY97		$35,922.0
	FY98		$38,358.2
	FY99		$43,458.9
	FY00	$2,475.4	$47,797.8
	FY01	$4,569.5	$52,014.6
	FY02	$4,129.7	$49,722.5
	FY03	$4,741.9	$48,187.8
	FY04	$3,941.0	$48,859.6
	FY05	$4,052.0	$51,928.5
	FY06	$3,925.0	$62,984.7

Figure C3. Total Private Giving and State Funding Institution (MSU, HBI)



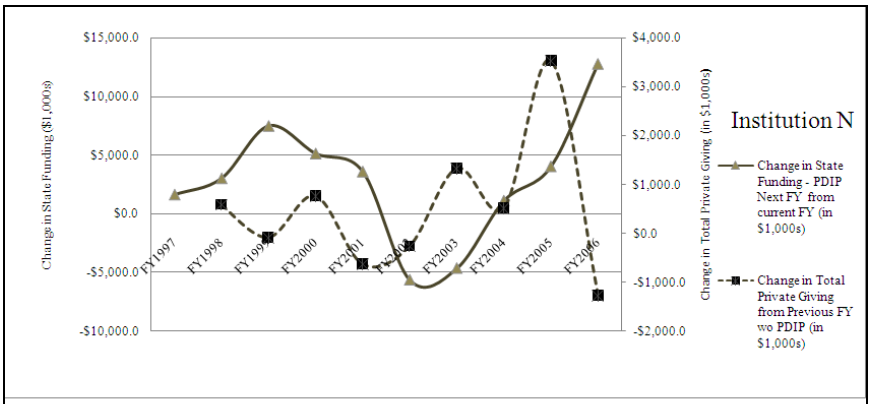
Institution P	FY	Total Private Giving (Ops and Capital) minus PDIP (in $1,000s)	State Funding without PDIP funds Next FY (in $1,000s)
	FY97	$843.4	$19,629.9
	FY98	$1,880.8	$20,509.7
	FY99	$1,724.9	$21,665.6
	FY00	$1,723.4	$23,180.3
	FY01	$1,617.1	$24,421.9
	FY02	$4,164.8	$22,508.0
	FY03	$6,682.3	$20,904.1
	FY04	$3,188.1	$21,297.2
	FY05		$22,602.0
	FY06		$26,143.2

Figure C4. Total Private Giving and State Funding Institution (UB, Masters)



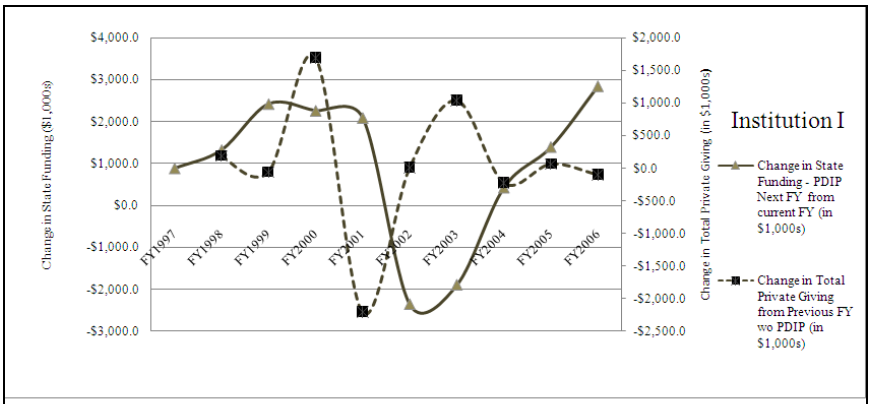
Institution S	FY	Total Private Giving (Ops and Capital) minus PDIP (in $1,000s)	State Funding without PDIP funds Next FY (in $1,000s)
	FY97		$12,084.6
	FY98		$12,358.9
	FY99		$12,664.2
	FY00		$13,336.2
	FY01		$14,697.6
	FY02	$2,201.0	$13,853.3
	FY03	$2,041.8	$13,682.9
	FY04	$1,849.1	$13,977.9
	FY05	$5,075.5	$14,436.2
	FY06	$2,542.3	$15,762.5

Figure C5. Total Private Giving and State Funding Institution (SMC, Baccalaureate)



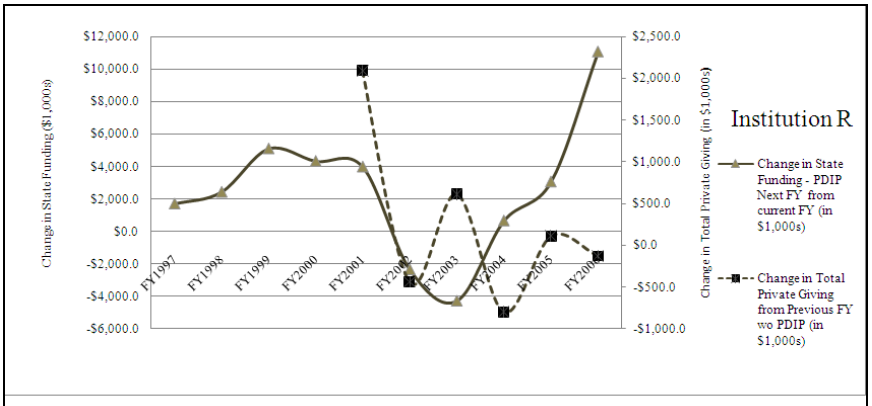
Institution N	FY	Change in Total Private Giving from Previous FY wo PDIP (in $1,000s)	Change in State Funding - PDIP Next FY from current FY (in $1,000s)
	FY1997		$1,639.9
	FY1998	$590.3	$3,029.5
	FY1999	-$84.8	$7,500.3
	FY2000	$770.1	$5,150.2
	FY2001	-$628.3	$3,607.9
	FY2002	-$261.4	-$5,638.9
	FY2003	$1,332.9	-$4,640.0
	FY2004	$515.7	$1,121.9
	FY2005	$3,532.8	$4,048.5
	FY2006	-$1,269.4	$12,805.5

Figure C6. Rate of Change in Total Private Giving and Change in State Funding (TU, Masters)



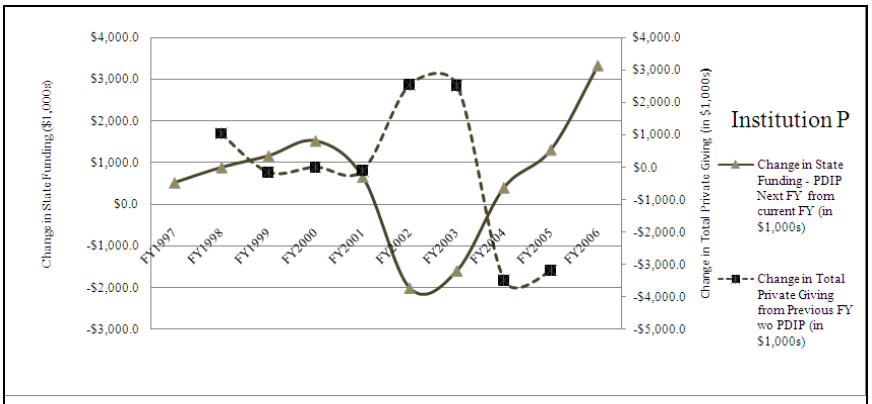
Institution I	FY	Change in Total Private Giving from Previous FY wo PDIP (in $1,000s)	Change in State Funding - PDIP Next FY from current FY (in $1,000s)
	FY1997		$886.5
	FY1998	$190.7	$1,325.0
	FY1999	-$60.2	$2,421.8
	FY2000	$1,697.3	$2,263.2
	FY2001	-$2,205.0	$2,091.1
	FY2002	$8.7	-$2,357.3
	FY2003	$1,036.1	-$1,893.6
	FY2004	-$224.3	$429.7
	FY2005	$67.3	$1,395.7
	FY2006	-$98.9	$2,849.4

Figure C7. Rate of Change in Total Private Giving and Change in State Funding (FSU, Masters)



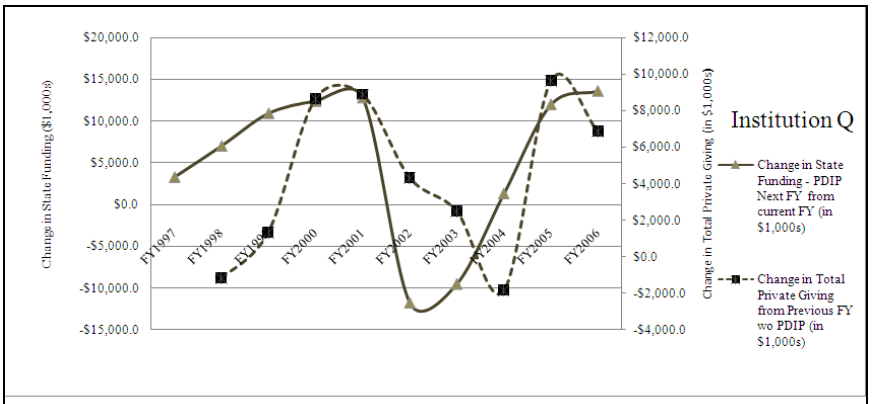
Institution R	FY	Change in Total Private Giving from Previous FY wo PDIP (in $1,000s)	Change in State Funding - PDIP Next FY from current FY (in $1,000s)
	FY1997		$1,710.6
	FY1998		$2,436.3
	FY1999		$5,100.6
	FY2000		$4,338.9
	FY2001	$2,094.1	$3,988.5
	FY2002	-$439.8	-$2,332.2
	FY2003	$612.3	-$4,266.2
	FY2004	-$800.9	$671.8
	FY2005	$111.0	$3,068.9
	FY2006	-$127.0	$11,056.2

Figure C8. Rate of Change in Total Private Giving and Change in State Funding (MSU, Doctorate, HBI)



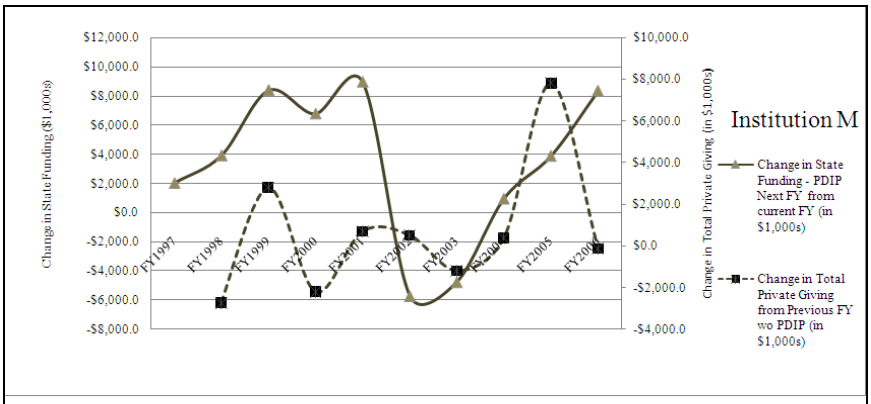
Institution P	FY	Change in Total Private Giving from Previous FY wo PDIP (in $1,000s)	Change in State Funding - PDIP Next FY from current FY (in $1,000s)
	FY1997		$512.6
	FY1998	$1,037.4	$879.8
	FY1999	-$156.0	$1,155.9
	FY2000	-$1.5	$1,514.7
	FY2001	-$106.3	$651.0
	FY2002	$2,547.7	-$2,017.4
	FY2003	$2,517.5	-$1,603.9
	FY2004	-$3,494.2	$393.2
	FY2005	-$3,188.1	$1,304.8
	FY2006		$3,326.1

Figure C9. Rate of Change in Total Private Giving and Change in State Funding (UB, Masters)



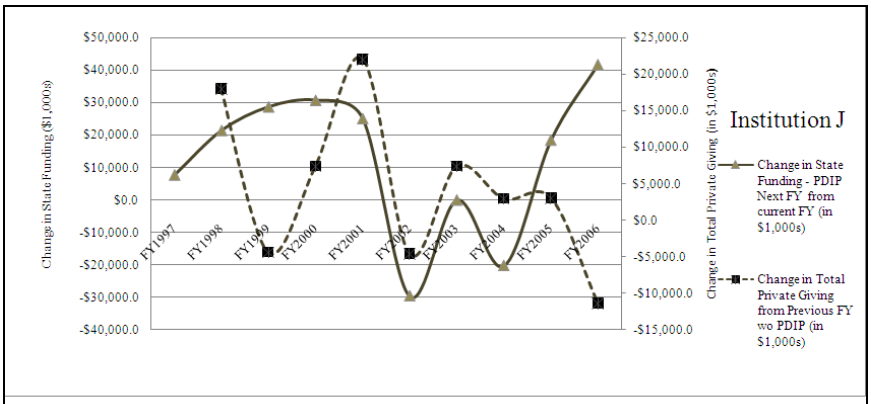
Institution Q	FY	Change in Total Private Giving from Previous FY wo PDIP (in $1,000s)	Change in State Funding - PDIP Next FY from current FY (in $1,000s)
	FY1997		$3,285.9
	FY1998	-$1,164.0	$7,025.1
	FY1999	$1,337.5	$10,932.0
	FY2000	$8,664.2	$12,405.3
	FY2001	$8,900.3	$12,813.4
	FY2002	$4,338.3	-$11,769.0
	FY2003	$2,492.0	-$9,503.6
	FY2004	-$1,849.4	$1,322.9
	FY2005	$9,657.8	$11,988.9
	FY2006	$6,859.6	$13,602.4

Figure C10. Rate of Change in Total Private Giving and Change in State Funding (UMB, Special Focus)



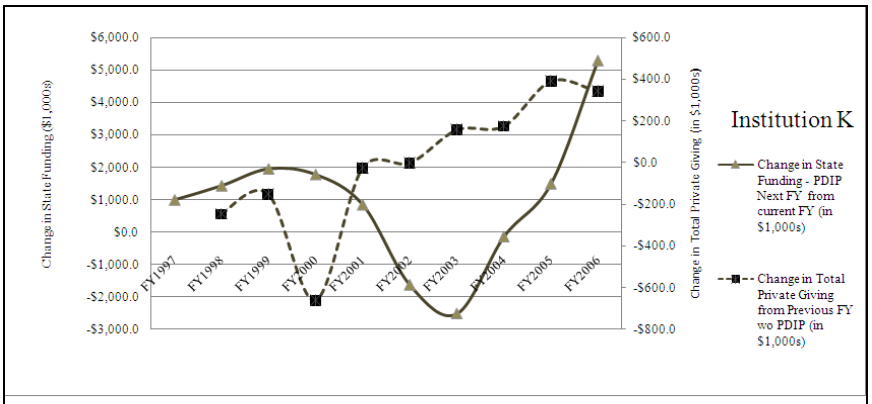
Institution M	FY	Change in Total Private Giving from Previous FY wo PDIP (in $1,000s)	Change in State Funding - PDIP Next FY from current FY (in $1,000s)
	FY1997		$2,030.1
	FY1998	-$2,729.3	$3,918.3
	FY1999	$2,807.8	$8,384.9
	FY2000	-$2,188.6	$6,775.7
	FY2001	$705.8	$8,947.3
	FY2002	$515.0	-$5,708.6
	FY2003	-$1,190.9	-$4,750.7
	FY2004	$388.0	$959.1
	FY2005	$7,820.7	$3,886.5
	FY2006	-$124.2	$8,342.8

Figure C11. Rate of Change in Total Private Giving and Change in State Funding (UMBC, Research)



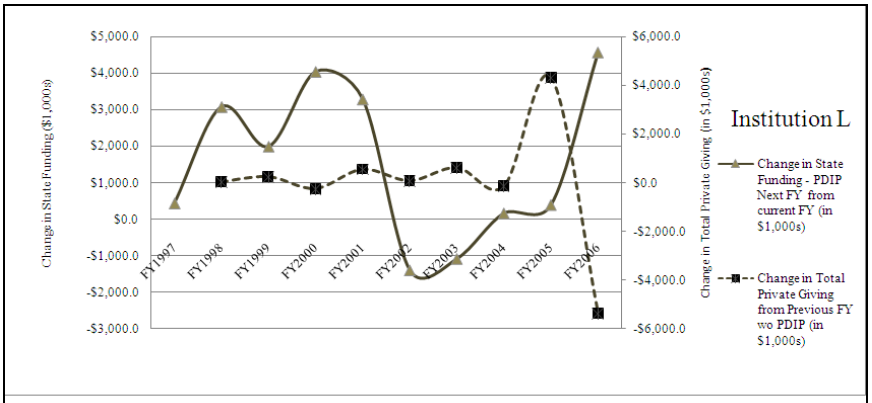
Institution J	FY	Change in Total Private Giving from Previous FY wo PDIP (in $1,000s)	Change in State Funding - PDIP Next FY from current FY (in $1,000s)
	FY1997		$7,733.5
	FY1998	$18,033.3	$21,450.3
	FY1999	-$4,366.8	$28,752.0
	FY2000	$7,398.5	$30,791.3
	FY2001	$22,065.3	$25,126.8
	FY2002	-$4,600.0	-$29,606.4
	FY2003	$7,401.2	$0.0
	FY2004	$2,950.3	-$20,217.5
	FY2005	$3,049.4	$18,488.2
	FY2006	-$11,418.4	$41,803.4

Figure C12. Rate of Change in Total Private Giving and Change in State Funding (UMCP, Research)



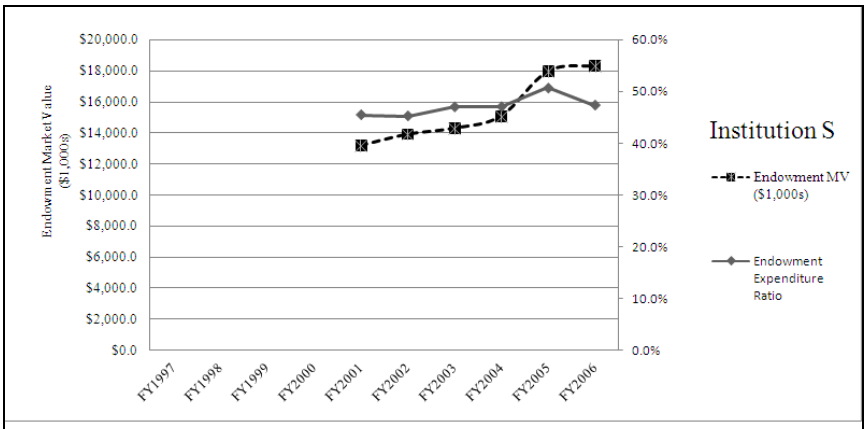
Institution K	FY	Change in Total Private Giving from Previous FY wo PDIP (in $1,000s)	Change in State Funding - PDIP Next FY from current FY (in $1,000s)
	FY1997		$991.9
	FY1998	-$246.9	$1,429.2
	FY1999	-$150.4	$1,950.6
	FY2000	-$660.8	$1,776.8
	FY2001	-$25.9	$843.9
	FY2002	-$2.9	-$1,626.2
	FY2003	$156.7	-$2,514.7
	FY2004	$174.3	-$138.1
	FY2005	$390.9	$1,492.2
	FY2006	$342.2	$5,294.4

Figure C13. Rate of Change in Total Private Giving and Change in State Funding (UMES, Masters, HBI)



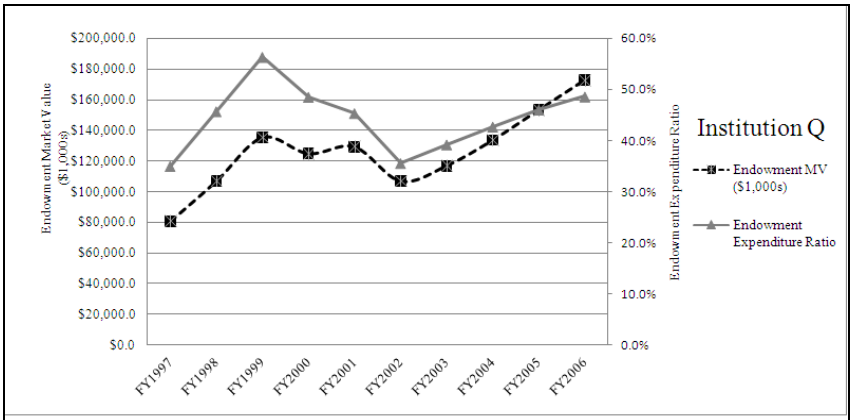
Institution L	FY	Change in Total Private Giving from Previous FY wo PDIP (in $1,000s)	Change in State Funding - PDIP Next FY from current FY (in $1,000s)
	FY1997		$435.1
	FY1998	$18.0	$3,073.5
	FY1999	$242.5	$1,989.4
	FY2000	-$246.2	$4,034.5
	FY2001	$546.3	$3,281.0
	FY2002	$75.6	-$1,396.4
	FY2003	$618.2	-$1,082.7
	FY2004	-$145.4	$163.8
	FY2005	$4,315.9	$393.7
	FY2006	-$5,373.1	$4,563.9

Figure C14. Rate of Change in Total Private Giving and Change in State Funding (UMUC, Masters)



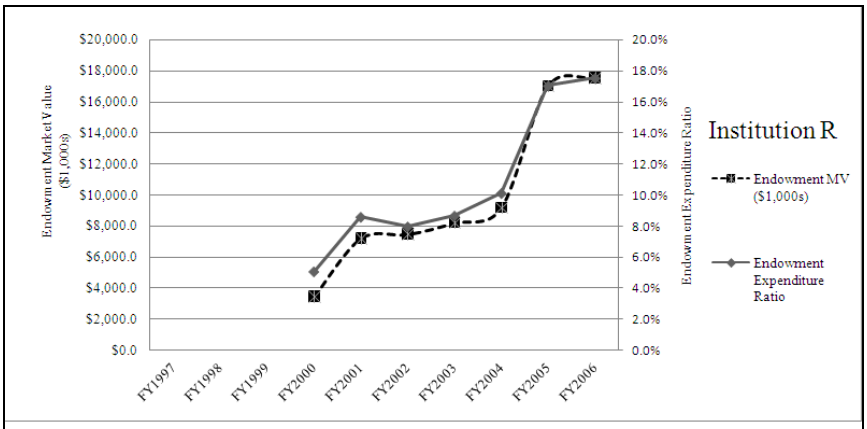
Institution S	FY	Endowment MV ($1,000s)	Pseudo State Endowment ($1,000s)	Endowment Expenditure Ratio
	FY1997		$235,367	
	FY1998		$241,692	
	FY1999		$247,179	
	FY2000		$253,284	
	FY2001	$13,176.8	$269,497	45.5%
	FY2002	$13,909.1	$294,438	45.2%
	FY2003	$14,296.5	$277,065	47.0%
	FY2004	$15,077.4	$273,657	47.1%
	FY2005	$17,958.3	$279,558	50.7%
	FY2006	$18,320.6	$291,858	47.4%

Figure C15. Endowment Market Value and Endowment Expenditure Ratio (SMC, Baccalaureate)



Institution Q	FY	Endowment MV ($1,000s)	Pseudo State Endowment ($1,000s)	Endowment Expenditure Ratio
	FY1997	$80,803.9	$2,122,019	35.0%
	FY1998	$106,994.0	$2,187,737	45.7%
	FY1999	$135,425.0	$2,328,238	56.4%
	FY2000	$124,889.0	$2,546,879	48.5%
	FY2001	$129,371.6	$2,797,674	45.3%
	FY2002	$107,073.7	$3,062,790	35.5%
	FY2003	$116,939.7	$2,833,568	39.2%
	FY2004	$133,656.5	$2,643,495	42.7%
	FY2005	$153,310.7	$2,669,952	46.0%
	FY2006	$172,769.5	$2,914,042	48.6%

Figure C16. Endowment Market Value and Endowment Expenditure Ratio (UMB, Special Focus)



Institution R	FY	Endowment MV ($1,000s)	Pseudo State Endowment ($1,000s)	Endowment Expenditure Ratio
	FY1997		$684,228	
	FY1998		$718,439	
	FY1999		$767,165	
	FY2000	$3,456.1	$869,178	5.1%
	FY2001	$7,230.7	$958,239	8.6%
	FY2002	$7,485.1	$1,040,692	8.0%
	FY2003	$8,218.3	$1,021,765	8.7%
	FY2004	$9,192.7	$963,757	10.1%
	FY2005	$17,023.1	$977,193	17.0%
	FY2006	$17,559.6	$1,038,571	17.5%

Figure C17. Endowment Market Value and Endowment Expenditure (MSU, Doctoral, HBI)

Table C4

Change in State Funding for Successive Fiscal Years without PDIP after Private Giving is received in Fiscal Year recorded (FY1997 – FY2006)

Fiscal Year	Carnegie Generic		Change in State Funding to Next FY without PDIP	Change in State Funding 2 FYs Out without PDIP
FY00	10	N	8	8
		Mean	$2,941,551	$5,064,669
		Std. Deviation	$1,234,508	$2,224,935
		Median	$2,584,828	$4,405,116
		Minimum	$1,514,695	$2,756,293
		Maximum	$5,150,242	$9,223,814
		Skewness	.758	1.127
	20	N	1	1
		Mean	$4,338,896	$8,555,721
		Std. Deviation	.	.
		Median	$4,338,896	$8,555,721
		Minimum	$4,338,896	$8,555,721
		Maximum	$4,338,896	$8,555,721
		Skewness	.	.
	30	N	1	1
		Mean	$672,028	$2,033,434
		Std. Deviation	.	.
		Median	$672,028	$2,033,434
		Minimum	$672,028	$2,033,434
		Maximum	$672,028	$2,033,434
		Variance	.	.
		Skewness	.	.
	40	N	1	1
		Mean	$12,405,253	$25,487,669.00
		Std. Deviation	.	.
		Median	$12,405,253	$25,487,669.00
		Minimum	$12,405,253	$25,487,669
		Maximum	$12,405,253	$25,487,669
		Skewness	.	.
	50	N	2	2
		Mean	$18,783,487	$36,493,189
		Std. Deviation	$16,981,594	$28,418,481
		Median	$18,783,487	$36,493,189
		Minimum	$6,775,687	$16,398,288
		Maximum	$30,791,287	$56,588,089
		Skewness	.	.
	Total	N	13	13

Fiscal Year	Carnegie Generic		Change in State Funding to Next FY without PDIP	Change in State Funding 2 FYs Out without PDIP
		Mean	$6,039,659	$11,506,196
		Std. Deviation	$8,025,293	$15,046,673
		Median	$3,623,310	$5,022,860
		Minimum	$672,028	$2,033,434
		Maximum	$30,791,287	$56,588,089
		Skewness	2.845	2.627
FY01	10	N	8	8
		Mean	$2,001,297	-$59,755
		Std. Deviation	$1,074,004	$1,227,638
		Median	$1,641,605	-$382,696
		Minimum	$946,315	-$1,716,593
		Maximum	$3,840,741	$2,039,858
		Skewness	.997	.561
	20	N	1	1
		Mean	$4,102,650	$1,810,502
		Std. Deviation	.	.
		Median	$4,102,650	$1,810,502
		Minimum	$4,102,650	$1,810,502
		Maximum	$4,102,650	$1,810,502
		Skewness	.	.
	30	N	1	1
		Mean	$1,222,811	$378,446
		Std. Deviation	.	.
		Median	$1,222,811	$378,446
		Minimum	$1,222,811	$378,446
		Maximum	$1,222,811	$378,446
		Skewness	.	.
	40	N	1	1
		Mean	$12,947,904	$1,794,684
		Std. Deviation	.	.
		Median	$12,947,904	$1,794,684
		Minimum	$12,947,904	$1,794,684
		Maximum	$12,947,904	$1,794,684
		Skewness	.	.
	50	N	2	2
		Mean	$17,373,376	$541,771
		Std. Deviation	$11,438,779	$4,458,844
		Median	$17,373,376	$541,771
		Minimum	$9,284,938	-$2,611,108
		Maximum	$25,461,814	$3,694,649
		Skewness	.	.
	Total	N	13	13

Fiscal Year	Carnegie Generic		Change in State Funding to Next FY without PDIP	Change in State Funding 2 FYs Out without PDIP
		Mean	$5,310,038	$353,010
		Std. Deviation	$7,035,924	$1,733,700
		Median	$2,091,099	$378,446
		Minimum	$946,315	-$2,611,108
		Maximum	$25,461,814	$3,694,649
		Skewness	2.335	.174
FY02	10	N	8	8
		Mean	-$2,209,049	-$4,010,833
		Std. Deviation	$1,435,591	$2,629,124
		Median	-$1,777,529	-$3,117,960
		Minimum	-$5,598,128	-$10,238,089
		Maximum	-$1,034,052	-$2,207,202
		Skewness	-2.332	-2.377
	20	N	1	1
		Mean	-$2,312,152	-$3,846,759
		Std. Deviation	.	.
		Median	-$2,312,152	-$3,846,759
		Minimum	-$2,312,152	-$3,846,759
		Maximum	-$2,312,152	-$3,846,759
		Skewness	.	.
	30	N	1	1
		Mean	-$868,648	-$1,039,048
		Std. Deviation	.	.
		Median	-$868,648	-$1,039,048
		Minimum	-$868,648	-$1,039,048
		Maximum	-$868,648	-$1,039,048
		Skewness	.	.
	40	N	1	1
		Mean	-$11,461,105	-$20,964,743
		Std. Deviation	.	.
		Median	-$11,461,105	-$20,964,743
		Minimum	-$11,461,105	-$20,964,743
		Maximum	-$11,461,105	-$20,964,743
		Skewness	.	.
	50	N	2	2
		Mean	-$17,244,564	-$31,804,316
		Std. Deviation	$16,397,966	$30,270,030
		Median	-$17,244,564	-$31,804,316
		Minimum	-$28,839,677	-$53,208,459
		Maximum	-$5,649,451	-$10,400,172
		Skewness	.	.
	Total	N	13	13

Fiscal Year	Carnegie Generic		Change in State Funding to Next FY without PDIP	Change in State Funding 2 FYs Out without PDIP
		Mean	-$5,138,725	-$9,349,680
		Std. Deviation	$7,698,929	$14,245,955
		Median	-$2,175,137	-$3,846,759
		Minimum	-$28,839,677	-$53,208,459
		Maximum	-$868,648	-$1,039,048
		Skewness	-2.843	-2.842
FY03	10	N	8	8
		Mean	-$1,956,059	-$1,423,399
		Std. Deviation	$1,121,340	$870,414
		Median	-$1,699,883	-$1,131,065
		Minimum	-$4,639,961	-$3,518,087
		Maximum	-$1,082,739	-$864,353
		Skewness	-2.462	-2.532
	20	N	1	1
		Mean	-$2,900,428	-$2,228,640
		Std. Deviation	.	.
		Median	-$2,900,428	-$2,228,640
		Minimum	-$2,900,428	-$2,228,640
		Maximum	-$2,900,428	-$2,228,640
		Skewness	.	.
	30	N	1	1
		Mean	-$170,400	$124,612
		Std. Deviation	.	.
		Median	-$170,400	$124,612
		Minimum	-$170,400	$124,612
		Maximum	-$170,400	$124,612
		Skewness	.	.
	40	N	1	1
		Mean	-$9,503,638	-$8,180,767
		Std. Deviation	.	.
		Median	-$9,503,638	-$8,180,767
		Minimum	-$9,503,638	-$8,180,767
		Maximum	-$9,503,638	-$8,180,767
		Skewness	.	.
	50	N	2	2
		Mean	-$14,559,752	-$12,004,580
		Std. Deviation	$13,872,064	$11,614,833
		Median	-$14,559,752	-$12,004,580
		Minimum	-$24,368,782	-$20,217,507
		Maximum	-$4,750,721	-$3,791,652
		Skewness	.	.
	Total	N	13	13

Fiscal Year	Carnegie Generic		Change in State Funding to Next FY without PDIP	Change in State Funding 2 FYs Out without PDIP
		Mean	-$4,410,957	-$3,513,934
		Std. Deviation	$6,465,573	$5,446,886
		Median	-$1,882,197	-$1,329,470
		Minimum	-$24,368,782	-$20,217,507
		Maximum	-$170,400	$124,612
		Skewness	-2.856	-2.812
FY04	10	N	8	8
		Mean	$381,497	$2,072,946
		Std. Deviation	$296,128	$1,335,661
		Median	$327,472	$1,857,125
		Minimum	-$359	$557,488
		Maximum	$994,707	$5,170,342
		Skewness	1.253	2.075
	20	N	1	1
		Mean	$671,788	$3,740,703
		Std. Deviation	.	.
		Median	$671,788	$3,740,703
		Minimum	$671,788	$3,740,703
		Maximum	$671,788	$3,740,703
		Skewness	.	.
	30	N	1	1
		Mean	$138,281.00	$753,308.00
		Std. Deviation	.	.
		Median	$138,281.00	$753,308.00
		Minimum	$138,281	$753,308
		Maximum	$138,281	$753,308
		Variance	.	.
		Skewness	.	.
	40	N	1	1
		Mean	$1,107,283	$13,311,742
		Std. Deviation	.	.
		Median	$1,107,283	$13,311,742
		Minimum	$1,107,283	$13,311,742
		Maximum	$1,107,283	$13,311,742
		Skewness	.	.
	50	N	2	2
		Mean	$2,421,507	$13,742,482
		Std. Deviation	$2,390,291	$12,582,182
		Median	$2,421,507	$13,742,482
		Minimum	$731,316	$4,845,536
		Maximum	$4,111,698	$22,639,428
		Skewness	.	.
	Total	N	13	13

Fiscal Year	Carnegie Generic		Change in State Funding to Next FY without PDIP	Change in State Funding 2 FYs Out without PDIP
		Mean	$754,795	$4,759,560
		Std. Deviation	$1,061,023	$6,325,584
		Median	$396,695	$1,960,683
		Minimum	-$359	$557,488
		Maximum	$4,111,698	$22,639,428
		Skewness	3.026	2.353
FY05	10	N	8	8
		Mean	$1,609,624	$8,338,909
		Std. Deviation	$1,058,110	$4,279,501
		Median	$1,410,309	$6,783,122
		Minimum	$407,599	$4,645,507
		Maximum	$4,059,232	$17,108,329
		Skewness	2.062	1.397
	20	N	1	1
		Mean	$3,068,915	$14,125,087
		Std. Deviation	.	.
		Median	$3,068,915	$14,125,087
		Minimum	$3,068,915	$14,125,087
		Maximum	$3,068,915	$14,125,087
		Skewness	.	.
	30	N	1	1
		Mean	$471,563	$1,784,653
		Std. Deviation	.	.
		Median	$471,563	$1,784,653
		Minimum	$471,563	$1,784,653
		Maximum	$471,563	$1,784,653
		Skewness	.	.
	40	N	1	1
		Mean	$12,007,121	$26,022,454
		Std. Deviation	.	.
		Median	$12,007,121	$26,022,454
		Minimum	$12,007,121	$26,022,454
		Maximum	$12,007,121	$26,022,454
		Variance	.	.
		Skewness	.	.
	50	N	2	2
		Mean	$11,198,624	$36,527,763
		Std. Deviation	$10,313,688	$33,719,063
		Median	$11,198,625	$36,527,763
		Minimum	$3,905,746	$12,684,785
		Maximum	$18,491,503	$60,370,741
		Skewness	.	.
	Total	N	13	13

Fiscal Year	Carnegie Generic		Change in State Funding to Next FY without PDIP	Change in State Funding 2 FYs Out without PDIP
		Mean	$3,909,372	$13,976,845
		Std. Deviation	$5,329,829	$15,357,736
		Median	$1,492,160.	$9,997,999
		Minimum	$407,599	$1,784,653
		Maximum	$18,491,503	$60,370,741
		Skewness	2.245	2.631
FY06	10	N	8	
		Mean	$6,613,079	
		Std. Deviation	$3,443,750	
		Median	$5,249,328	
		Minimum	$3,049,582	
		Maximum	$12,932,694	
		Skewness	.921	
	20	N	1	
		Mean	$11,056,172	
		Std. Deviation	.	
		Median	$11,056,172	
		Minimum	$11,056,172	
		Maximum	$11,056,172	
		Skewness	.	
	30	N	1	
		Mean	$1,169,626	
		Std. Deviation	.	
		Median	$1,169,626	
		Minimum	$1,169,626	
		Maximum	$1,169,626	
		Skewness	.	
	40	N	1	
		Mean	$13,817,995	
		Std. Deviation	.	
		Median	$13,817,995	
		Minimum	$13,817,995	
		Maximum	$13,817,995	
		Skewness	.	
	50	N	2	
		Mean	$25,206,788	
		Std. Deviation	$23,527,172	
		Median	$25,206,788	
		Minimum	$8,570,565	
		Maximum	$41,843,011	
		Skewness	.	
	Total	N	13	

Fiscal Year	Carnegie Generic		Change in State Funding to Next FY without PDIP	Change in State Funding 2 FYs Out without PDIP
		Mean	$9,950,923	
		Std. Deviation	$10,345,865	
		Median	$8,570,565	
		Minimum	$1,169,626	
		Maximum	$41,843,011	
		Skewness	2.747	
FY97	10	N	8	8
		Mean	$796,657	$2,436,181
		Std. Deviation	$412,974	$1,168,514
		Median	$792,294	$2,244,122
		Minimum	$322,709	$994,712
		Maximum	$1,639,909	$4,669,383
		Skewness	1.166	.973
	20	N	1	1
		Mean	$1,710,570	$4,146,851
		Std. Deviation	.	.
		Median	$1,710,570	$4,146,851
		Minimum	$1,710,570	$4,146,851
		Maximum	$1,710,570	$4,146,851
		Skewness	.	.
	30	N	1	1
		Mean	$316,251	$590,572
		Std. Deviation	.	.
		Median	$316,251	$590,572
		Minimum	$316,251	$590,572
		Maximum	$316,251	$590,572
		Skewness	.	.
	40	N	1	1
		Mean	$3,285,903	$10,310,989
		Std. Deviation	.	.
		Median	$3,285,903	$10,310,989
		Minimum	$3,285,903	$10,310,989
		Maximum	$3,285,903	$10,310,989
		Skewness	.	.
	50	N	2	2
		Mean	$4,881,797	$17,566,116
		Std. Deviation	$4,032,860	$16,429,833
		Median	$4,881,797	$17,566,116
		Minimum	$2,030,134	$5,948,470
		Maximum	$7,733,459	$29,183,762
		Skewness	.	.
	Total	N	13	13

Fiscal Year	Carnegie Generic		Change in State Funding to Next FY without PDIP	Change in State Funding 2 FYs Out without PDIP
		Mean	$1,649,967	$5,359,238
		Std. Deviation	$2,013,105	$7,608,094
		Median	$886,464	$2,421,027
		Minimum	$316,251	$590,572
		Maximum	$7,733,459	$29,183,762
		Skewness	2.651	2.965
FY98	10	N	8	8
		Mean	$1,639,524	$4,280,032
		Std. Deviation	$912,939	$2,697,766
		Median	$1,377,099	$3,639,621
		Minimum	$672,003	$2,035,715
		Maximum	$3,073,453	$10,529,735
		Skewness	1.046	2.163
	20	N	1	1
		Mean	$2,436,281	$7,536,918
		Std. Deviation	.	.
		Median	$2,436,281	$7,536,918
		Minimum	$2,436,281	$7,536,918
		Maximum	$2,436,281	$7,536,918
		Skewness	.	.
	30	N	1	1
		Mean	$274,321	$579,587
		Std. Deviation	.	.
		Median	$274,321	$579,587
		Minimum	$274,321	$579,587
		Maximum	$274,321	$579,587
		Variance	.	.
		Skewness	.	.
	40	N	1	1
		Mean	$7,025,086	$17,957,109
		Std. Deviation	.	.
		Median	$7,025,086	$17,957,109
		Minimum	$7,025,086	$17,957,109
		Maximum	$7,025,086	$17,957,109
		Variance	.	.
		Skewness	.	.
	50	N	2	2
		Mean	$12,684,320	$31,252,770
		Std. Deviation	$12,396,973	$26,798,745
		Median	$12,684,320	$31,252,770
		Minimum	$3,918,336	$12,303,196
		Maximum	$21,450,303	$50,202,344
		Skewness	.	.

Fiscal Year	Carnegie Generic		Change in State Funding to Next FY without PDIP	Change in State Funding 2 FYs Out without PDIP
	Total	N	13	13
		Mean	$3,709,271	$9,447,647
		Std. Deviation	$5,622,181	$13,192,117
		Median	$1,468,081	$3,746,839
		Minimum	$274,321	$579,587
		Maximum	$21,450,303	$50,202,344
		Skewness	3.034	2.829
FY99	10	N	8	8
		Mean	$2,640,508	$5,582,060
		Std. Deviation	$2,008,723	$3,066,896
		Median	$2,131,685	$4,825,953
		Minimum	$1,155,895	$2,670,590
		Maximum	$7,500,261	$12,650,503
		Skewness	2.572	2.096
	20	N	1	1
		Mean	$5,100,637	$9,439,533
		Std. Deviation	.	.
		Median	$5,100,637	$9,439,533
		Minimum	$5,100,637	$9,439,533
		Maximum	$5,100,637	$9,439,533
		Skewness	.	.
	30	N	1	1
		Mean	$305,266	$977,294
		Std. Deviation	.	.
		Median	$305,266	$977,294
		Minimum	$305,266	$977,294
		Maximum	$305,266	$977,294
		Skewness	.	.
	40	N	1	1
		Mean	$10,932,023	$23,337,276
		Std. Deviation	.	.
		Median	$10,932,023	$23,337,276
		Minimum	$10,932,023	$23,337,276
		Maximum	$10,932,023	$23,337,276
		Variance	.	.
		Skewness	.	.
	50	N	2	2
		Mean	$18,568,451	$37,351,938
		Std. Deviation	$14,401,772	$31,383,365
		Median	$18,568,451	$37,351,938
		Minimum	$8,384,860	$15,160,547
		Maximum	$28,752,041	$59,543,328
		Skewness	.	.

Fiscal Year	Carnegie Generic		Change in State Funding to Next FY without PDIP	Change in State Funding 2 FYs Out without PDIP
	Total	N	13	13
		Mean	$5,738,376	$11,778,035
		Std. Deviation	$7,629,718	$15,603,598
		Median	$2,297,984	$5,921,294
		Minimum	$305,266	$977,294
		Maximum	$28,752,041	$59,543,328
		Skewness	2.616	2.760
Total	10	N	80	72
		Mean	$1,445,863	$2,475,645
		Std. Deviation	$2,816,081	$4,293,405
		Median	$1,314,905	$2,208,803
		Minimum	-$5,598,128	-$10,238,089
		Maximum	$12,932,694	$17,108,329
		Skewness	1.114	.466
	20	N	10	9
		Mean	$2,727,333	$4,808,880
		Std. Deviation	$3,972,395	$5,752,521
		Median	$2,752,598	$4,146,851
		Minimum	-$2,900,428	-$3,846,759
		Maximum	$11,056,172	$14,125,087
		Skewness	.625	-.038
	30	N	10	9
		Mean	$353,110	$686,984
		Std. Deviation	$611,154	$902,632
		Median	$310,759	$590,572
		Minimum	-$868,648	-$1,039,048
		Maximum	$1,222,811	$2,033,434
		Skewness	-.451	-.342
	40	N	10	9
		Mean	$5,256,383	$9,897,379
		Std. Deviation	$9,326,850	$16,222,815
		Median	$8,978,555	$13,311,742
		Minimum	-$11,461,105	-$20,964,743
		Maximum	$13,817,995	$26,022,454
		Skewness	-1.031	-.936
	50	N	20	18
		Mean	$7,931,403	$14,407,459
		Std. Deviation	$17,146,030	$29,498,941
		Median	$7,254,573	$12,493,991
		Minimum	-$28,839,677	-$53,208,459
		Maximum	$41,843,011	$60,370,741
		Skewness	-.229	-.170
	Total	N	130	117

Fiscal Year	Carnegie Generic		Change in State Funding to Next FY without PDIP	Change in State Funding 2 FYs Out without PDIP
		Mean	$2,751,272	$4,924,102
		Std. Deviation	$7,842,343	$13,427,131
		Median	$1,412,313	$2,421,027
		Minimum	-$28,839,677	-$53,208,459
		Maximum	$41,843,011	$60,370,741
		Skewness	1.131	1.337

Table C5

Descriptive Statistics – Types of Private Giving and Endowment (FY1997 – FY2006)

	Unrestricted Giving	Restricted Giving	Capital Giving	Endowment Market Value	EER plus 1 FY	State Pseudo Endowment
N	108	108	106	114	102	130
Mean	$519,428	$8,441,134	$2,969,578	$43,955,114	.217	$1,162,194,388
Median	$158,661	$1,159,878	$1,038,581	$13,138,086	.166	$478,698,230
SD	$1,063,977	$16,652,114	$4,034,171	$75,921,950	.147	$1,585,977,609
Minimum	$0	$151,801	$0	$2,400,000	.03	$77,300,000
Maximum	$5,422,540	$71,426,291	$17,110,556	$332,483,219	.60	$7,186,779,540

Table C6

Endowment expenditure ratios and State Pseudo Endowment by Fiscal Year

Fiscal Year		EER plus 1 FY	EER plus 2 FY	State Pseudo Endowment
FY1997	N	10	10	13
	Mean	.2497	.2916	$914,277,560.00
	Std. Deviation	.17931	.21978	$1,303,512,160.082
	Median	.1920	.2030	$393,441,820.00
	Minimum	.04	.05	$77,300,000
	Maximum	.47	.60	$4,880,966,600
FY1998	N	10	10	13
	Mean	.2916	.2703	$947,276,903.08
	Std. Deviation	.21978	.19260	$1,343,460,693.061
	Median	.2030	.2040	$411,171,100.00
	Minimum	.05	.05	$86,002,600
	Maximum	.60	.55	$5,035,635,780
FY1999	N	10	11	13
	Mean	.2703	.2085	$1,021,462,313.85
	Std. Deviation	.19260	.12502	$1,453,936,549.769
	Median	.2040	.1370	$437,671,700.00
	Minimum	.05	.04	$147,471,660
	Maximum	.55	.42	$5,464,641,840
FY2000	N	11	10	13
	Mean	.2085	.1750	$1,136,229,843.08
	Std. Deviation	.12502	.10509	$1,604,708,081.158
	Median	.1370	.1595	$486,107,880.00
	Minimum	.04	.03	$187,258,740
	Maximum	.42	.34	$6,039,682,660
FY2001	N	10	10	13
	Mean	.1750	.1685	$1,260,153,013.85
	Std. Deviation	.10509	.11391	$1,765,131,785.679
	Median	.1595	.1205	$531,372,060.00
	Minimum	.03	.03	$269,496,500
	Maximum	.34	.36	$6,662,208,160
FY2002	N	10	11	13
	Mean	.1685	.1911	$1,368,428,907.69
	Std. Deviation	.11391	.13519	$1,906,930,497.761
	Median	.1205	.1330	$573,194,040.00

Fiscal Year		EER plus 1 FY	EER plus 2 FY	State Pseudo Endowment
	Minimum	.03	.04	$294,438,380
	Maximum	.36	.45	$7,186,779,540
FY2003	N	11	10	13
	Mean	.1911	.1780	$1,270,420,489.23
	Std. Deviation	.13519	.11040	$1,751,637,563.968
	Median	.1330	.1525	$526,048,680.00
	Minimum	.04	.03	$277,065,420
	Maximum	.45	.36	$6,609,986,000
FY2004	N	10	10	13
	Mean	.1780	.2024	$1,183,816,835.38
	Std. Deviation	.11040	.13036	$1,621,721,843.931
	Median	.1525	.1870	$488,176,980.00
	Minimum	.03	.05	$273,657,420
	Maximum	.36	.52	$6,122,610,360
FY2005	N	10	10	13
	Mean	.2024	.2340	$1,200,934,567.69
	Std. Deviation	.13036	.13353	$1,642,441,044.292
	Median	.1870	.2340	$496,770,580.00
	Minimum	.05	.06	$279,557,660
	Maximum	.52	.48	$6,205,635,860
FY2006	N	10	1	13
	Mean	.2340	.0000	$1,281,453,012.31
	Std. Deviation	.13353	.	$1,746,583,470.839
	Median	.2340	.0000	$528,689,080.00
	Minimum	.06	.00	$291,858,200
	Maximum	.48	.00	$6,576,190,460
Total	N	102	93	130
	Mean	.2166	.2107	$1,158,445,344.62
	Std. Deviation	.14761	.14536	$1,573,527,090.453
	Median	.1660	.1620	$478,698,230.00
	Minimum	.03	.00	$77,300,000
	Maximum	.60	.60	$7,186,779,540

Table C7

Descriptive Statistics of Ranking Indicators for all Maryland 4-Year Public Institutions (FY1997 – FY2006).

	N	Mean	Median	SD	Minimum	Maximum
Peer Retention Rate	58	.77	.77	.09	.60	.95
Peer Graduation Rate	58	.50	.48	.17	.25	.85
SAT Score	100	1042	1054	15	815	1271
Peer Alumni Giving Rate	74	.14	.13	.07	.02	.39
Institutional RD per FT Faculty ($)	25	102,966	63,162	87,390	14,711	259,490
Peer RD per FT Faculty ($)	25	110,234	121,373	87,242	2,688	259,676

Table C8

Descriptive Statistics – Total Private Giving, Change in State Operating Funding (at 1 and 2 years), Budgeted Expenditures and Capital Budget per FTE Student

	N	Mean	Median	SD	Minimum	Maximum
FTE Student	130	7,301	5,140	6,615	1,556	29,002
Total Private Giving w/o PDIP per FTE Student ($)	113	1,277	507	2,001	53	10,671
Change in State Funding w/o PDIP per FTE Student ($)	130	377	317	749	-2,183	2,885
Change in State Funding w/o PDIP per FTE Student in 2FYs ($)	117	651	$565	1,218	-4,079	4,855
Budgeted Expenditure per FTE Student ($)	130	16,800	13,110	11,756	6,034	65,683
Capital Budget per FTE Student ($)	130	2,183	769	3,255	0	15,618

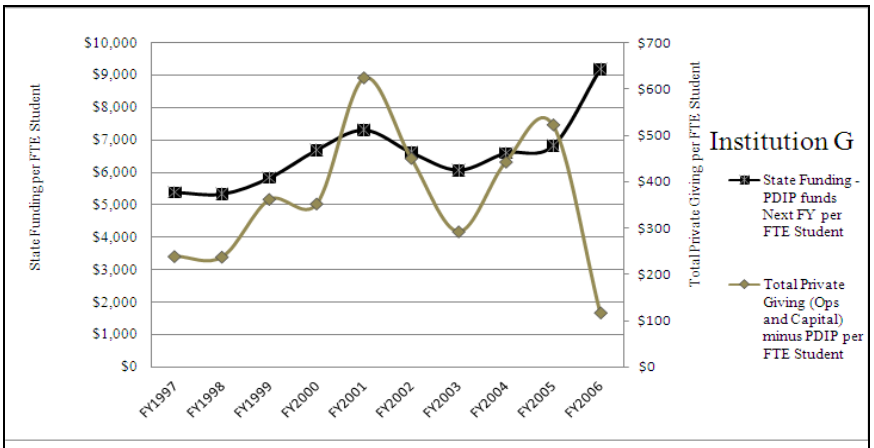
Table C9

Descriptive Statistics – Mean of Total Private Giving and Change in State Operating Support per FTE Student by Institutional Type and Fiscal Year (FY1997 – FY2006)

Fiscal Year	Carnegie Generic	Total Private Giving per FTE Student	Change in State Op Funding in 1 year per FTE Student	Change in State Op Funding in 2 years per FTE Student
	10	$215.00	$182.50	$507.88
	20		$335.00	$766.00
FY1997	30		$196.00	$355.00
	40	$3,545.00	$628.00	$1,966.00
	50	$1,248.50	$290.50	$946.50

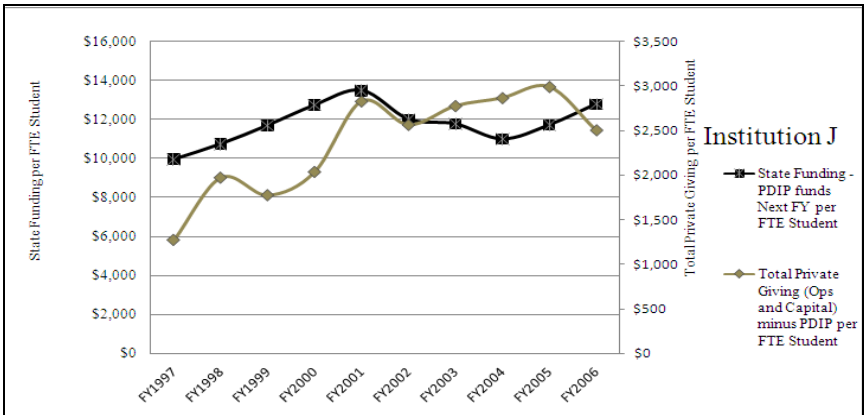
Fiscal Year	Carnegie Generic	Total Private Giving per FTE Student	Change in State Op Funding in 1 year per FTE Student	Change in State Op Funding in 2 years per FTE Student
FY1998	Total	$754.70	$246.15	$695.62
	10	$302.43	$339.25	$807.00
	20		$464.00	$1,364.00
	30		$166.00	$364.00
	40	$3,225.00	$1,303.00	$3,493.00
	50	$1,408.50	$684.50	$1,721.00
FY1999	Total	$815.90	$462.77	$1,163.00
	10	$349.86	$520.63	$1,099.25
	20		$942.00	$1,659.00
	30		$184.00	$628.00
	40	$3,713.00	$2,085.00	$4,434.00
	50	$1,559.50	$1,094.50	$2,017.00
FY2000	Total	$928.10	$735.77	$1,503.77
	10	$536.86	$593.75	$962.63
	20	$521.00	$785.00	$1,460.00
	30		$422.00	$1,244.00
	40	$5,515.00	$2,413.00	$4,855.00
	50	$1,535.50	$1,008.00	$1,952.00
FY2001	Total	$1,169.55	$798.92	$1,474.15
	10	$411.43	$390.50	-$7.88
	20	$1,121.00	$721.00	$302.00
	30		$786.00	$206.00
	40	$7,100.00	$2,460.00	$349.00
	50	$2,054.00	$1,028.50	$156.00
FY2002	Total	$1,382.64	$703.69	$85.08
	10	$418.71	-$427.25	-$741.00
	20	$897.00	-$395.00	-$631.00
	30	$1,346.00	-$531.00	-$522.00
	40	$7,738.00	-$2,183.00	-$4,079.00
	50	$1,874.50	-$842.00	-$1,502.50
FY2003	Total	$1,388.42	-$631.62	-$1,089.62
	10	$615.57	-$378.13	-$261.63
	20	$792.00	-$484.00	-$353.00
	30	$1,112.00	-$93.00	$62.00

Fiscal Year	Carnegie Generic	Total Private Giving per FTE Student	Change in State Op Funding in 1 year per FTE Student	Change in State Op Funding in 2 years per FTE Student
	40	$8,381.00	-$1,848.00	-$1,561.00
	50	$1,829.00	-$260.50	-$563.00
	Total	$1,521.00	-$459.31	-$390.08
FY2004	10	$352.37	$75.38	$399.50
	20	$647.00	$110.00	$639.00
	30	$929.00	$69.00	$378.00
	40	$8,028.00	$215.00	$2,458.00
	50	$2,017.50	-$319.00	$234.00
	Total	$1,266.00	$27.62	$549.15
FY2005	10	$358.43	$317.88	$1,621.63
	20	$642.00	$486.00	$2,310.00
	30	$2,544.00	$236.00	$891.00
	40	$9,714.00	$2,291.00	$4,696.00
	50	$2,308.50	$538.50	$1,715.00
	Total	$1,668.83	$510.23	$1,869.23
FY2006	10	$436.14	$1,304.50	
	20	$670.00	$1,888.00	
	30	$1,274.00	$586.00	
	40	$10,671.00	$2,552.00	
	50	$2,071.50	$1,188.50	
	Total	$1,650.92	$1,372.23	
Total	10	$399.01	$291.90	$487.49
	20	$755.71	$485.20	$835.11
	30	$1,441.00	$202.10	$400.67
	40	$6,763.00	$991.60	$1,845.67
	50	$1,790.70	$441.15	$741.78
	Total	$1,276.72	$376.65	$651.15



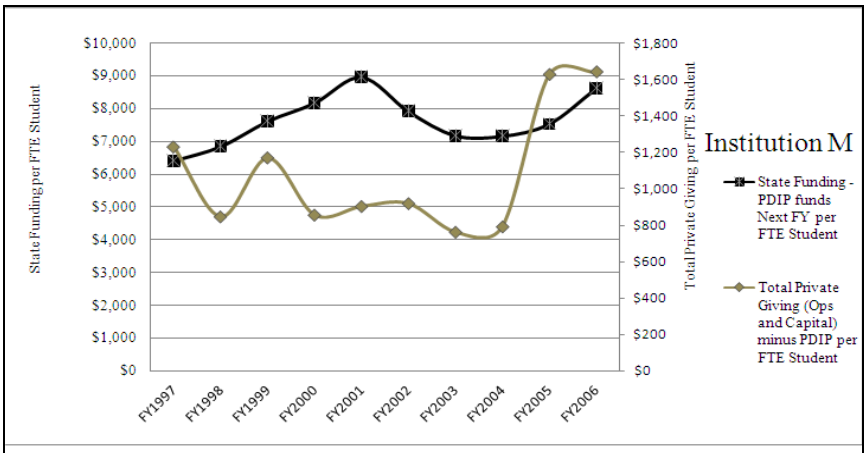
Institution G	FY	Total Private Giving (Ops and Capital) minus PDIP per FTE Student	State Funding - PDIP funds Next FY per FTE Student
	FY1997	$239	$5,378
	FY1998	$238	$5,321
	FY1999	$362	$5,826
	FY2000	$352	$6,689
	FY2001	$624	$7,309
	FY2002	$450	$6,612
	FY2003	$292	$6,065
	FY2004	$442	$6,593
	FY2005	$523	$6,817
	FY2006	$118	$9,185

Figure C18. Total Private Giving per FTE Student and State Funding per FTE Student (CSU, HBI)



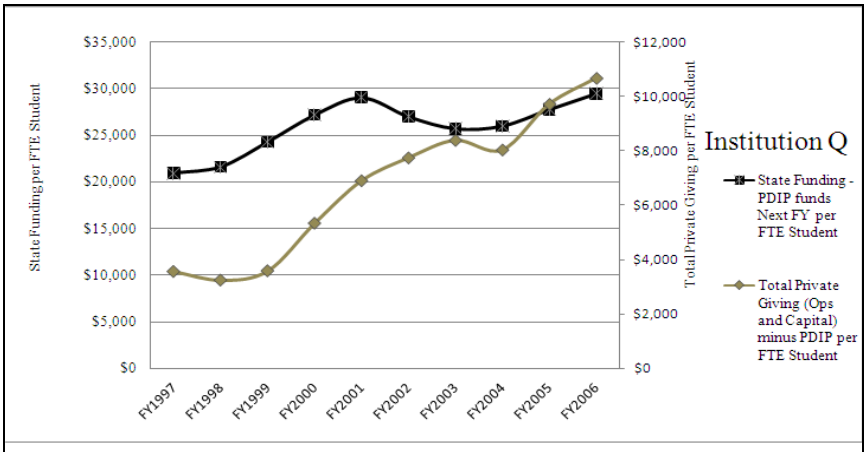
Institution J	FY	Total Private Giving (Ops and Capital) minus PDIP per FTE Student	State Funding - PDIP funds Next FY per FTE Student
	FY1997	$1,268	$9,940
	FY1998	$1,970	$10,734
	FY1999	$1,772	$11,691
	FY2000	$2,035	$12,731
	FY2001	$2,830	$13,485
	FY2002	$2,565	$11,999
	FY2003	$2,777	$11,759
	FY2004	$2,867	$10,982
	FY2005	$2,992	$11,705
	FY2006	$2,504	$12,780

Figure C19. Total Private Giving per FTE Student and State Funding per FTE Student (UMCP, Research, Flagship)



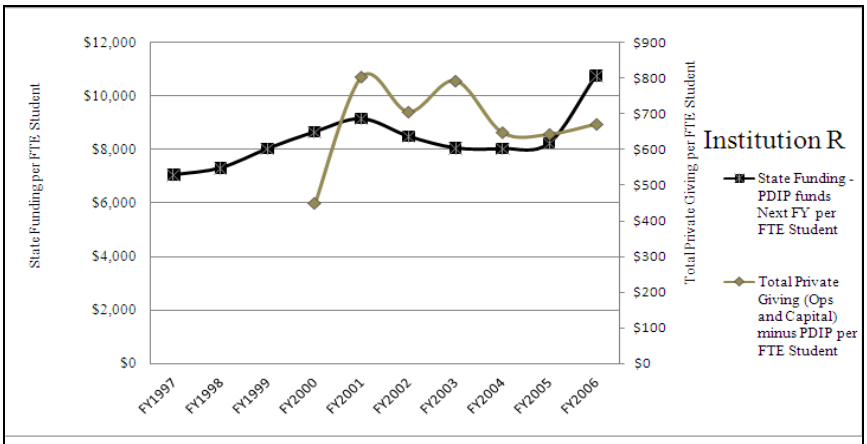
Institution M	FY	Total Private Giving (Ops and Capital) minus PDIP per FTE Student	State Funding - PDIP funds Next FY per FTE Student
	FY1997	$1,229	$6,400
	FY1998	$847	$6,845
	FY1999	$1,169	$7,615
	FY2000	$856	$8,178
	FY2001	$903	$8,970
	FY2002	$919	$7,916
	FY2003	$763	$7,176
	FY2004	$792	$7,160
	FY2005	$1,625	$7,530
	FY2006	$1,639	$8,619

Figure C20. Total Private Giving per FTE Student and State Funding per FTE Student (UMBC, Research)



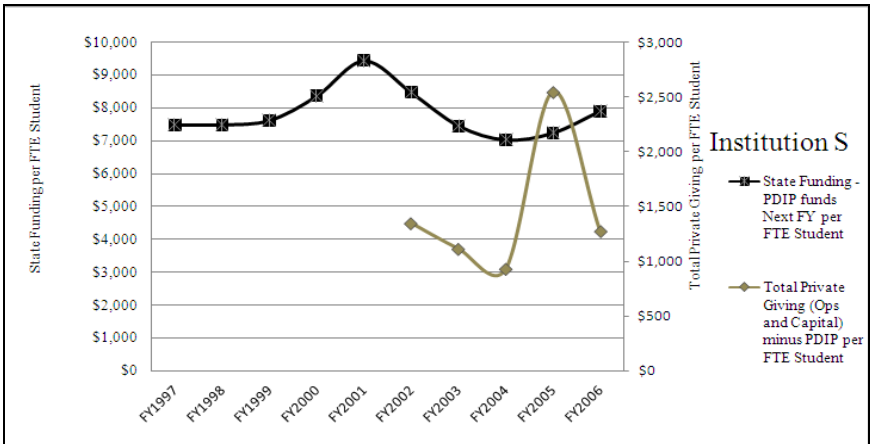
Institution Q	FY	Total Private Giving (Ops and Capital) minus PDIP per FTE Student	State Funding - PDIP funds Next FY per FTE Student
	FY1997	$3,545	$20,911
	FY1998	$3,225	$21,598
	FY1999	$3,570	$24,284
	FY2000	$5,327	$27,183
	FY2001	$6,894	$29,039
	FY2002	$7,738	$26,986
	FY2003	$8,381	$25,695
	FY2004	$8,028	$25,972
	FY2005	$9,714	$27,754
	FY2006	$10,671	$29,459

Figure C21. Total Private Giving per FTE Student and State Funding per FTE Student (UMB, Special Focus)



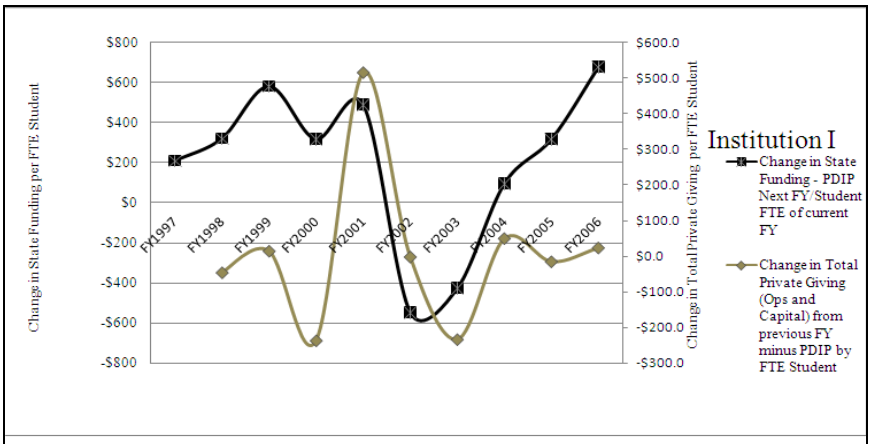
Institution R	FY	Total Private Giving (Ops and Capital) minus PDIP per FTE Student	State Funding - PDIP funds Next FY per FTE Student
	FY1997		$7,037
	FY1998		$7,302
	FY1999		$8,026
	FY2000	$448	$8,653
	FY2001	$803	$9,143
	FY2002	$705	$8,485
	FY2003	$792	$8,045
	FY2004	$647	$8,020
	FY2005	$642	$8,227
	FY2006	$670	$10,756

Figure C22. Total Private Giving per FTE Student and State Funding per FTE Student (MSU, Doctorate, HBI)



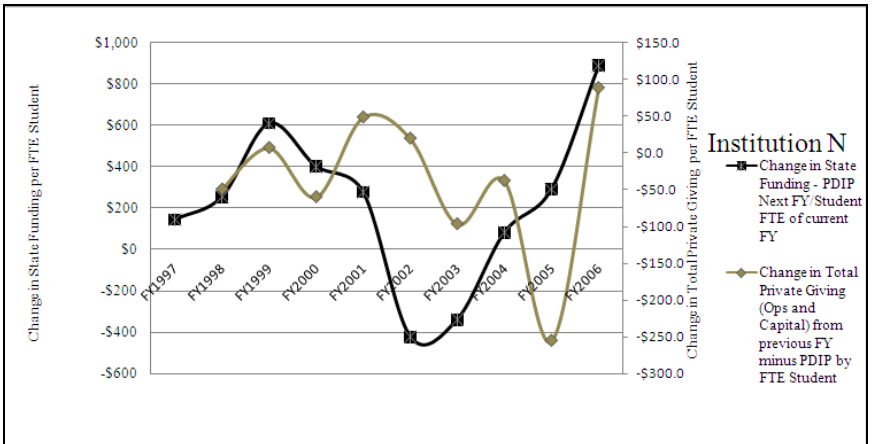
Institution S	FY	Total Private Giving (Ops and Capital) minus PDIP per FTE Student	State Funding - PDIP funds Next FY per FTE Student
	FY1997		$7,487
	FY1998		$7,486
	FY1999		$7,620
	FY2000		$8,367
	FY2001		$9,446
	FY2002	$1,346	$8,473
	FY2003	$1,112	$7,453
	FY2004	$929	$7,024
	FY2005	$2,544	$7,236
	FY2006	$1,274	$7,901

Figure C23. Total Private Giving per FTE Student and State Funding per FTE Student (SMC, Baccalaureate)



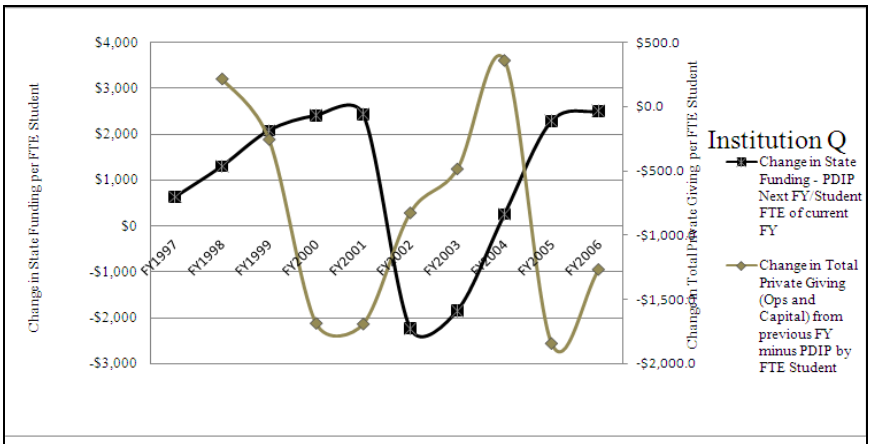
Institution I	FY	Change in Total Private Giving (Ops and Capital) from previous FY minus PDIP by FTE Student	Change in State Funding - PDIP Next FY/Student FTE of current FY
	FY1997		$208
	FY1998	-$46.0	$320
	FY1999	$14.4	$579
	FY2000	-$236.6	$315
	FY2001	$514.7	$488
	FY2002	-$2.0	-$548
	FY2003	-$233.4	-$427
	FY2004	$49.8	$95
	FY2005	-$15.3	$317
	FY2006	$23.5	$677

Figure C24. Change in Total Private Giving per FTE Student and Change in State Funding per FTE Student (FSU, Masters)



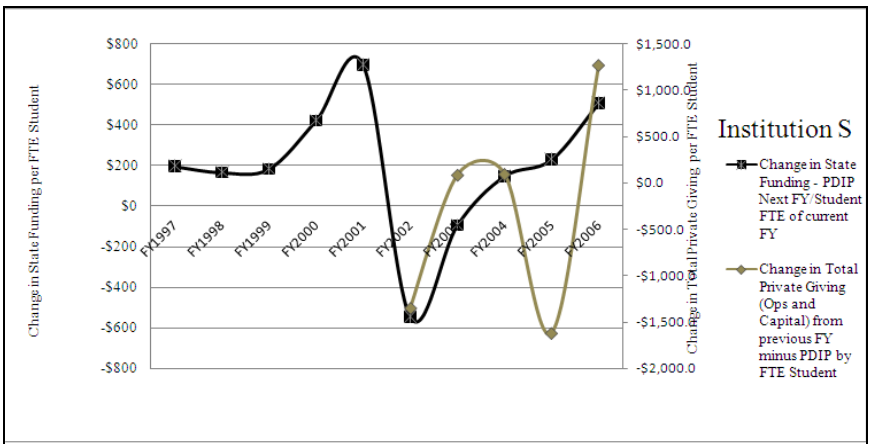
Institution N	FY	Change in Total Private Giving (Ops and Capital) from previous FY minus PDIP by FTE Student	Change in State Funding - PDIP Next FY/Student FTE of current FY
	FY1997		$144
	FY1998	-$49.6	$255
	FY1999	$6.9	$609
	FY2000	-$60.0	$402
	FY2001	$48.3	$277
	FY2002	$19.6	-$422
	FY2003	-$96.8	-$337
	FY2004	-$38.0	$83
	FY2005	-$255.4	$293
	FY2006	$88.2	$890

Figure C25. Change in Total Private Giving per FTE Student and Change in State Funding per FTE Student (TU, Masters)



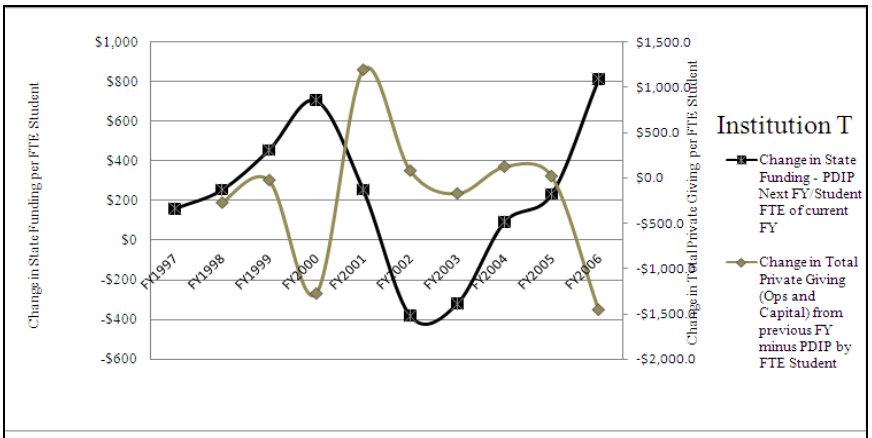
Institution Q	FY	Change in Total Private Giving (Ops and Capital) from previous FY minus PDIP by FTE Student	Change in State Funding - PDIP Next FY/Student FTE of current FY
	FY1997		$628
	FY1998	$215.9	$1,303
	FY1999	-$255.0	$2,085
	FY2000	-$1,685.3	$2,413
	FY2001	-$1,691.1	$2,435
	FY2002	-$826.3	-$2,242
	FY2003	-$484.4	-$1,848
	FY2004	$359.8	$257
	FY2005	-$1,842.4	$2,287
	FY2006	-$1,266.8	$2,512

Figure C26. Change in Total Private Giving per FTE Student and Change in State Funding per FTE Student (UMB, Special Focus)



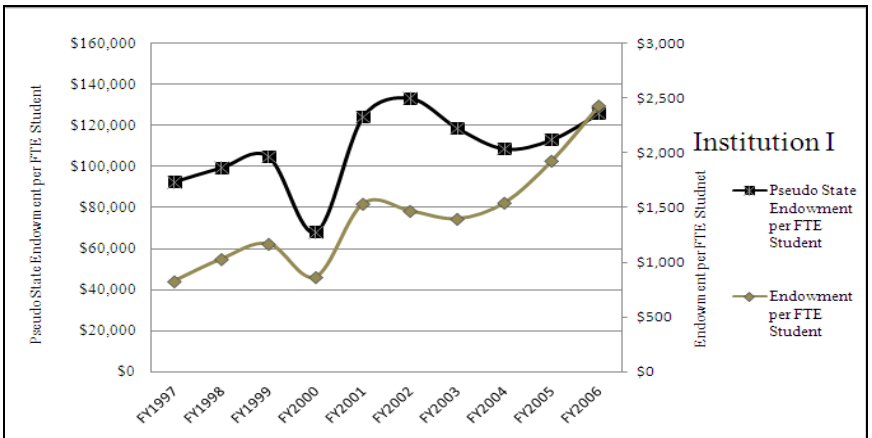
Institution S	FY	Change in Total Private Giving (Ops and Capital) from previous FY minus PDIP by FTE Student	Change in State Funding - PDIP Next FY/Student FTE of current FY
	FY1997		$196
	FY1998		$166
	FY1999		$184
	FY2000		$422
	FY2001		$697
	FY2002	-$1,346.2	-$546
	FY2003	$86.7	-$93
	FY2004	$96.8	$148
	FY2005	-$1,617.2	$230
	FY2006	$1,269.8	$508

Figure C27. Change in Total Private Giving per FTE Student and Change in State Funding per FTE Student (SMC, Baccalaureate)



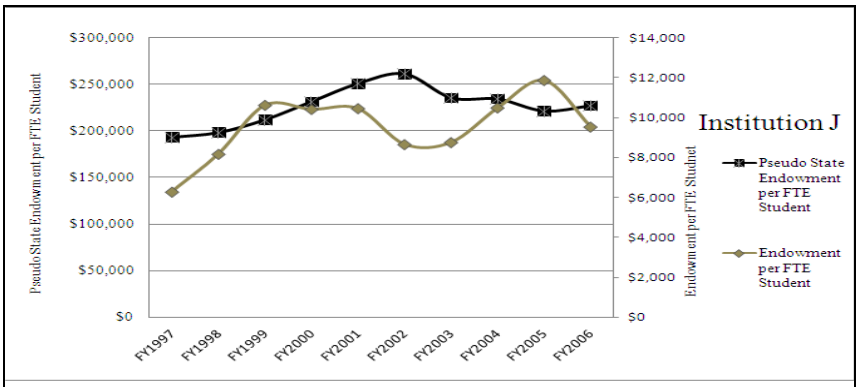
Institution T	FY	Change in Total Private Giving (Ops and Capital) from previous FY minus PDIP by FTE Student	Change in State Funding - PDIP Next FY/Student FTE of current FY
	FY1997		$159
	FY1998	-$276.3	$254
	FY1999	-$27.3	$455
	FY2000	-$1,278.2	$706
	FY2001	$1,189.9	$255
	FY2002	$77.4	-$382
	FY2003	-$174.4	-$320
	FY2004	$121.7	$92
	FY2005	$16.7	$232
	FY2006	-$1,457.2	$814

Figure C28. Change in Total Private Giving per FTE Student and Change in State Funding per FTE Student (SU, Masters)



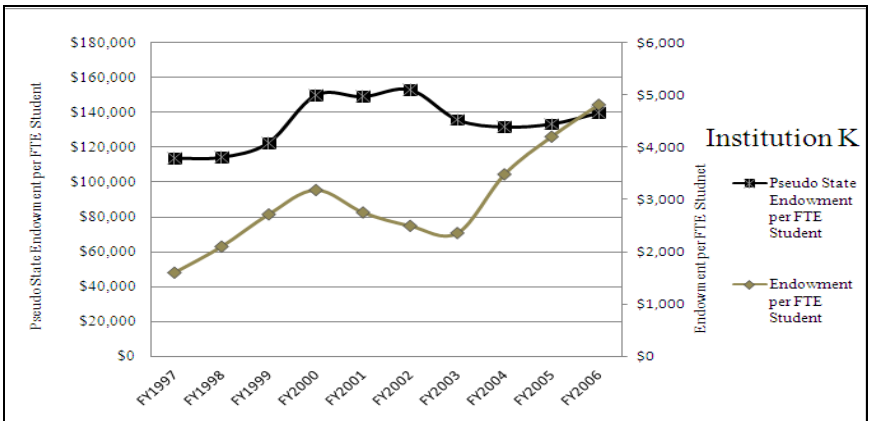
Institution I	FY	Endowment per FTE Student	Pseudo State Endowment per FTE Student
	FY1997	$826	$92,314
	FY1998	$1,028	$99,197
	FY1999	$1,167	$104,681
	FY2000	$864	$67,760
	FY2001	$1,533	$124,036
	FY2002	$1,467	$133,177
	FY2003	$1,395	$118,506
	FY2004	$1,542	$108,411
	FY2005	$1,924	$112,877
	FY2006	$2,425	$125,699

Figure C29. Pseudo State Endowment per FTE Student and Endowment per FTE Student (FSU. Masters)



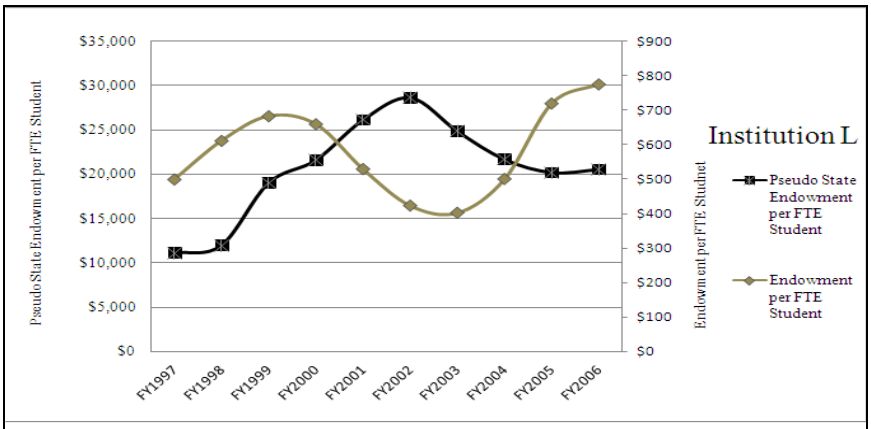
Institution J	FY	Endowment per FTE Student	Pseudo State Endowment per FTE Student
	FY1997	$6,274	$192,703
	FY1998	$8,159	$197,817
	FY1999	$10,599	$211,562
	FY2000	$10,395	$231,069
	FY2001	$10,434	$250,544
	FY2002	$8,644	$260,920
	FY2003	$8,744	$235,181
	FY2004	$10,470	$233,949
	FY2005	$11,837	$220,935
	FY2006	$9,516	$226,750

Figure C30. Pseudo State Endowment per FTE Student and Endowment per FTE Student (UMCP, Research, Flagship)



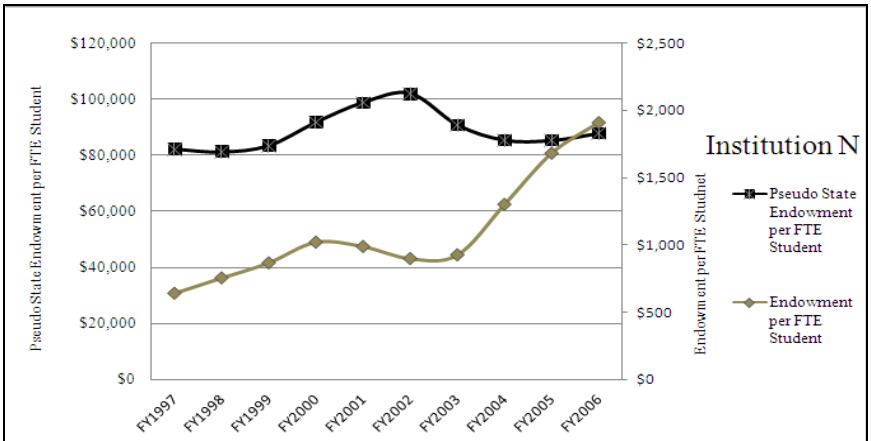
Institution K	FY	Endowment per FTE Student	Pseudo State Endowment per FTE Student
	FY1997	$1,594	$113,414
	FY1998	$2,094	$113,977
	FY1999	$2,712	$122,317
	FY2000	$3,181	$149,819
	FY2001	$2,750	$148,935
	FY2002	$2,492	$152,916
	FY2003	$2,355	$135,567
	FY2004	$3,482	$131,450
	FY2005	$4,205	$133,229
	FY2006	$4,818	$139,567

Figure C31. Pseudo State Endowment per FTE Student and Endowment per FTE Student (UMES, Masters, HBI)



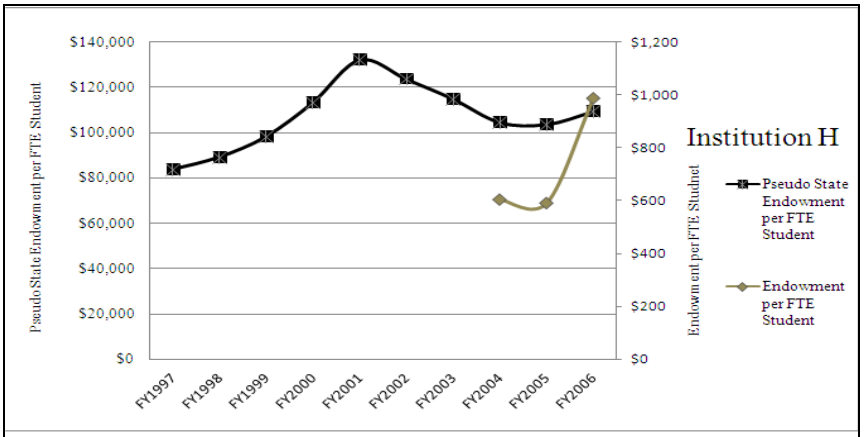
Institution L	FY	Endowment per FTE Student	Pseudo State Endowment per FTE Student
	FY1997	$499	$11,048
	FY1998	$611	$11,923
	FY1999	$683	$18,997
	FY2000	$660	$21,576
	FY2001	$529	$26,126
	FY2002	$423	$28,634
	FY2003	$403	$24,834
	FY2004	$501	$21,645
	FY2005	$720	$20,169
	FY2006	$776	$20,516

Figure C32. Pseudo State Endowment per FTE Student and Endowment per FTE Student (UMUC, Masters)



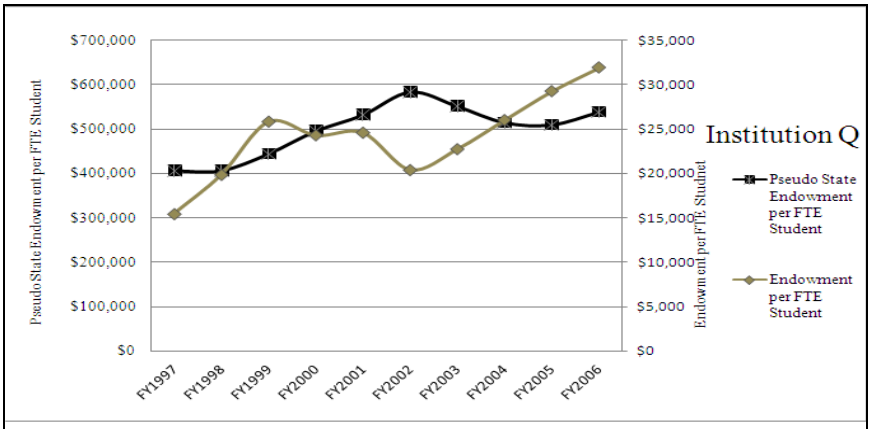
Institution N	FY	Endowment per FTE Student	Pseudo State Endowment per FTE Student
	FY1997	$643	$82,164
	FY1998	$757	$81,136
	FY1999	$868	$83,349
	FY2000	$1,021	$91,685
	FY2001	$990	$98,717
	FY2002	$900	$101,935
	FY2003	$928	$90,718
	FY2004	$1,302	$85,280
	FY2005	$1,682	$85,213
	FY2006	$1,909	$87,724

Figure C33. Pseudo State Endowment per FTE Student and Endowment per FTE Student (TU, Masters)



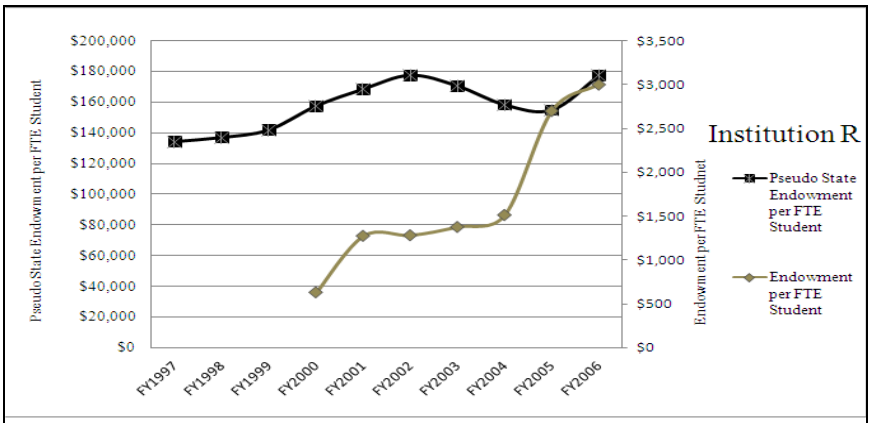
Institution H	FY	Endowment per FTE Student	Pseudo State Endowment per FTE Student
	FY1997		$83,599
	FY1998		$89,098
	FY1999		$98,194
	FY2000		$113,333
	FY2001		$132,199
	FY2002		$123,606
	FY2003		$114,764
	FY2004	$605	$104,344
	FY2005	$591	$103,504
	FY2006	$987	$109,272

Figure C34. Pseudo State Endowment per FTE Student and Endowment per FTE Student (BSU, Masters, HBI)



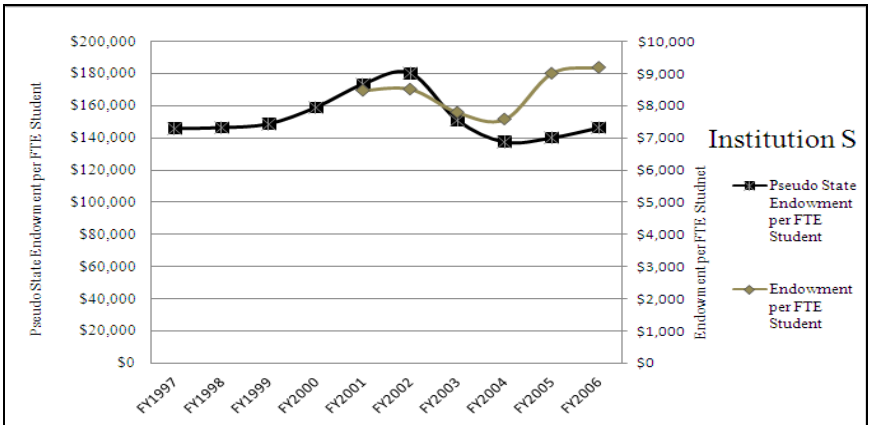
Institution Q	FY	Endowment per FTE Student	Pseudo State Endowment per FTE Student
	FY1997	$15,447	$405,662
	FY1998	$19,850	$405,888
	FY1999	$25,825	$443,981
	FY2000	$24,293	$495,405
	FY2001	$24,581	$531,574
	FY2002	$20,395	$583,389
	FY2003	$22,733	$550,849
	FY2004	$26,003	$514,299
	FY2005	$29,247	$509,339
	FY2006	$31,906	$538,142

Figure C35. Pseudo State Endowment per FTE Student and Endowment per FTE Student (UMB, Special Focus)



Institution R	FY	Endowment per FTE Student	Pseudo State Endowment per FTE Student
	FY1997		$134,031
	FY1998		$136,767
	FY1999		$141,674
	FY2000	$626	$157,346
	FY2001	$1,271	$168,437
	FY2002	$1,277	$177,593
	FY2003	$1,372	$170,579
	FY2004	$1,509	$158,200
	FY2005	$2,697	$154,815
	FY2006	$2,999	$177,352

Figure C36. Pseudo State Endowment per FTE Student and Endowment per FTE Student (MSU, Doctoral, HBI)



Institution S	FY	Endowment per FTE Student	Pseudo State Endowment per FTE Student
	FY1997		$145,829
	FY1998		$146,391
	FY1999		$148,724
	FY2000		$158,898
	FY2001	$8,468	$173,198
	FY2002	$8,507	$180,085
	FY2003	$7,787	$150,907
	FY2004	$7,577	$137,516
	FY2005	$9,002	$140,129
	FY2006	$9,183	$146,295

Figure C37. Pseudo State Endowment per FTE Student and Endowment per FTE Student (SMC, Baccalaureate)

Table C10

Research Question 5 – Correlations(a) of Institutional Wealth per FTE Student, Total Private Giving per FTE Student, and State Funding per FTE Student (FY1997 – FY2006)

	Institutional Wealth per FTE Student	State Funding per FTE Student
State Funding per FTE Student	.935**	
Total Private Giving per FTE Student	.968**	.896**

** Correlation is significant at the 0.01 level (2-tailed).
a Listwise N=13

Table C11

Research Question 5 – Correlations(a) of Average FT Faculty Salary, Total Private Giving per FTE Student, and State Funding per FTE Student(FY1997 – FY2006)

	State Funding per FTE	Total Private Giving per FTE Student
Total Private Giving per FTE Student	.896**	
Average FT Faculty Salary	.653*	.789**

** Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed)..
a Listwise N=13

Appendix D

Historically Black Institutions Private Giving and State Support per FTE Student

Data were available to distinguish between Historically Black Institutions (HBIs) and Traditionally White Institutions (TWIs). Related descriptive statistics are presented (Table D1). Mean giving per FTE Student was $429 for HBIs and $1,583 for the TWIs with a median of $408 and $715, respectively. The mean for the Change in State Operating Funding in Two Years was $725 and $606 with a median of $726 and $514 for the HBIs and TWIs, respectively. The Endowment Expenditure Ratio had a mean of 0.155 and median of 0.136 for HBIs and a mean of 0.236 and 0.194 for the TWIs. The standard deviations for these statistics were all high. Interestingly, the median for the State Pseudo Endowment for both types of institutions was similar, $131,922 for HBIs and $131,378 for TWIs yet the Pseudo State Endowment per FTE was $130,130 and $163,068 for HBIs and TWIs, respectively. This finding let to extracting more data to see the annual changes between the types of institutions (Figure D3 – D6). The minimum and maximum ranges were more extreme for the TWIs, driven by the open admissions institution with substantial operations on-line of overseas on the minimum end, and the special focus institution at the maximum end. It is also important to recall that the types of institutions and program expenditures vary between HBIs and TWIs. This data suggests further research to distinguish state funding by program and institution funding would be useful.

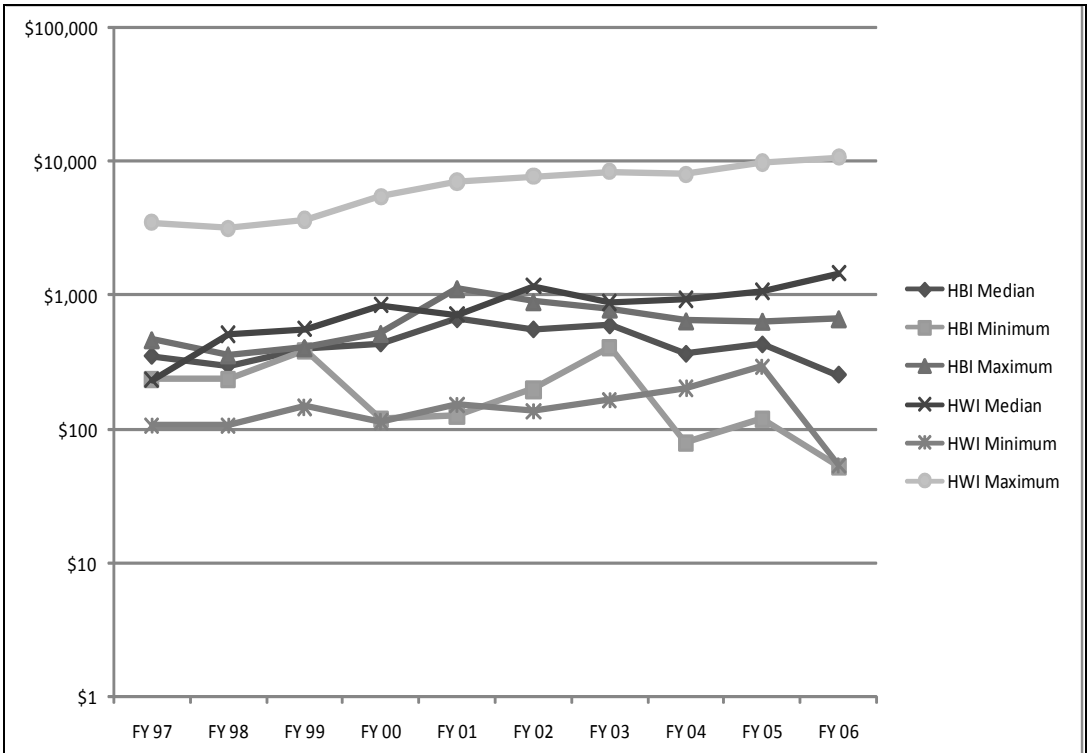
Figure D1 below demonstrates the relationship of the range of Total Private Giving per FTE Student between HBIs and TWIs. Using logarithmic values on the Y-axis to compensate for the outliers of the maximum each fiscal year for the TWIs, this allows

focus on the medians for both types of institutions over 10 years along with the minimum and maximum giving levels each year. Similarly, Figure D2 provides a graph of the relationship of the range of Change in State Operating Funding in 2 Years per FTE Student by HBI and TWI over the period studied.

Table D1

Descriptive Statistics – Four Historically Black Institutions of Maryland comparison to Other Maryland Public Four-Year Institutions with Private Giving, Change in State Funding and Endowment Characteristics per FTE Student (FY1997 – FY2006)

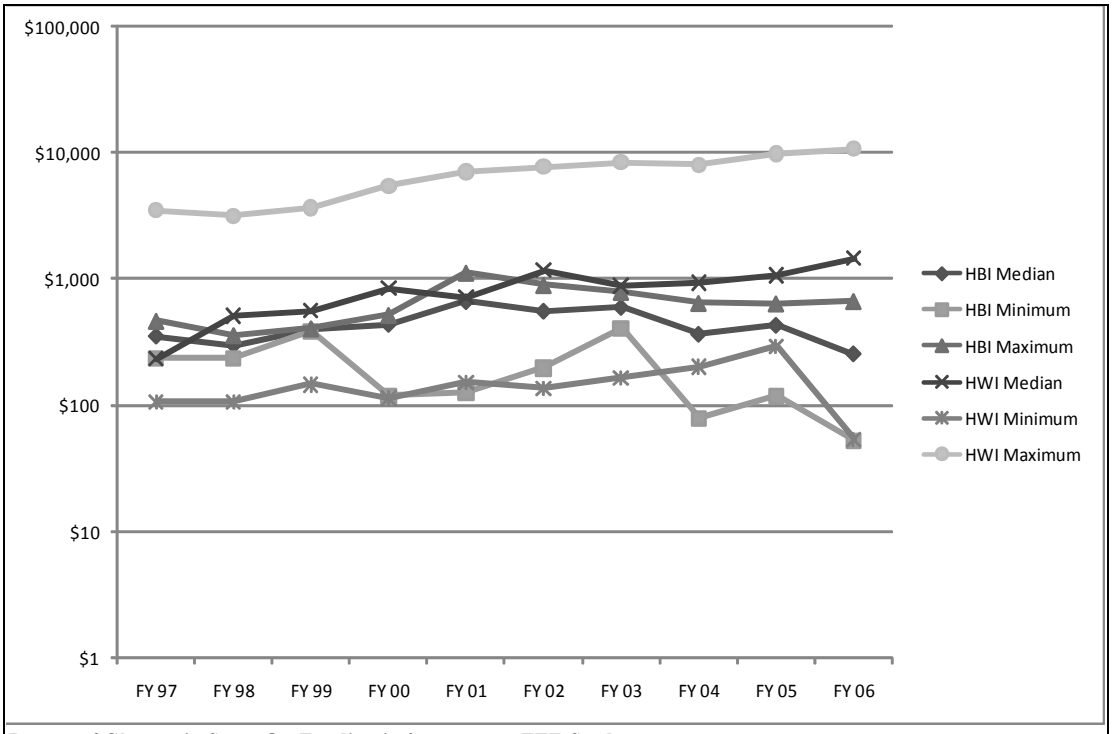
HBI/ HWI		Total Private Giving per FTE Student	Change in State Funding per FTE Student in 2 FYs	EER plus 1 FY	Endowment per Student FTE	Pseudo State Endowment per FTE Student
HBI	N	30	36	24	30	40
	Mean	$429	$752	.155	$2,027	$130,130
	Median	$409	$726	.136	$1,685	$131,922
	SD	$259	$992	.069	$1,026	$23,496
	Minimum	$53	-$929	.030	$591	$83,599
	Maximum	$1,121	$3,680	.280	$4,818	$177,593
Non	N	83	81	78	84	90
	Mean	$1,583	$606	.236	$6,311	$163,068
	Median	$715	$514	.194	$3,712	$131,378
	SD	$2,255	$1,309	.160	$7,430	$132,312
	Minimum	$54	-$4,079	.030	$403	$11,048
	Maximum	$10,671	$4,855	.600	$31,906	$583,389
Total	N	113	117	102	114	130
	Mean	$1,277	$651	.217	$5,183	$152,933
	Median	$507	$565	.166	$2,353	$131,806
	SD	$2,001	$1,218	.148	$6,664	$111,704
	Minimum	$53	-$4,079	.030	$403	$11,048
	Maximum	$10,671	$4,855	.600	$31,906	$583,389



Range of Total Private Giving per FTE Student

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06
HBI Median	$354	$300	$399	$439	$668	$560	$600	$366	$431	$255
HBI Minimum	$239	$238	$389	$119	$127	$199	$409	$80	$119	$53
HBI Maximum	$468	$361	$408	$521	$1,121	$897	$792	$647	$642	$670
HWI Median	$234	$511	$560	$847	$714	$1,184	$881	$929	$1,066	$1,457
HWI Minimum	$106	$106	$147	$114	$153	$137	$166	$203	$294	$54
HWI Maximum	$3,545	$3,225	$3,713	$5,515	$7,100	$7,738	$8,381	$8,028	$9,714	$10,671

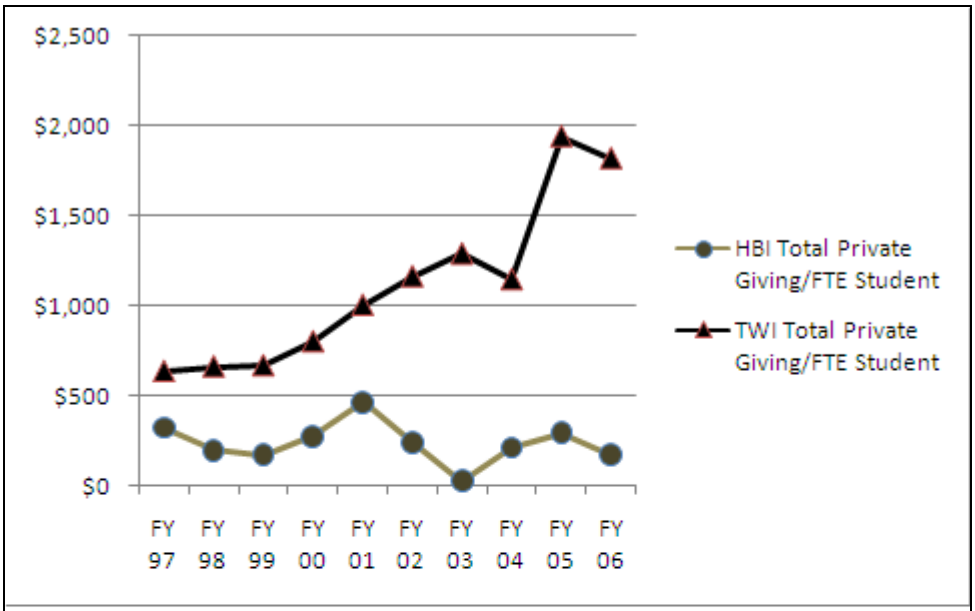
Figure D1. Range of Total Private Giving per FTE Student by HBIs and TWIs.



Range of Change in State Op Funding in 2 years per FTE Student

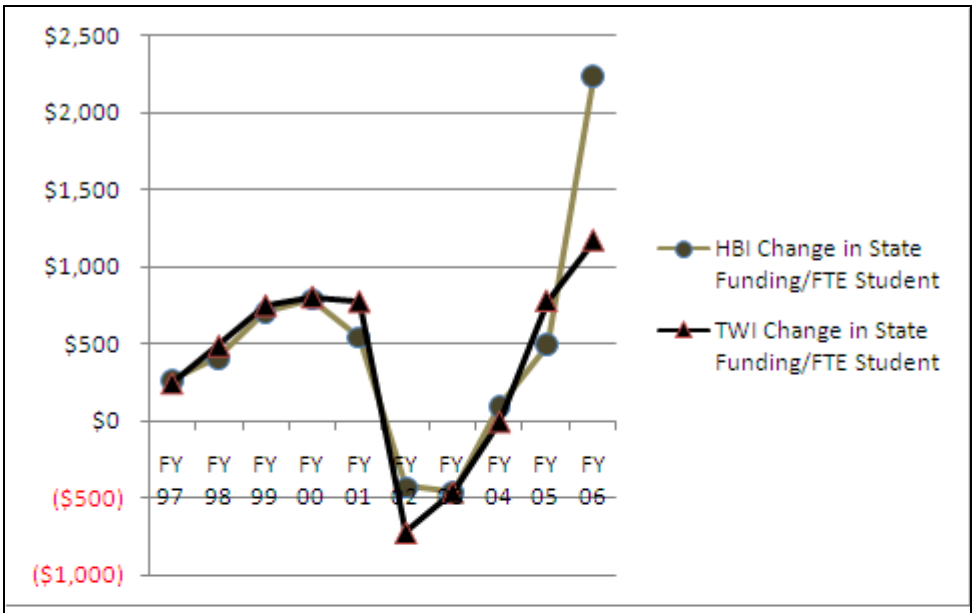
	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06
HBI Median	$288	$452	$664	$803	$553	-$456	-$481	$101	$471	$2,016
HBI Minimum	$125	$247	$557	$650	$349	-$528	-$536	$56	$285	$1,584
HBI Maximum	$349	$476	$942	$895	$721	-$281	-$353	$122	$539	$2,885
HWI Median	$196	$320	$579	$497	$488	-$548	-$337	$73	$321	$899
HWI Minimum	$62	$166	$184	$315	$255	-$2,183	-$1,848	-$717	$28	$319
HWI Maximum	$628	$1,303	$2,085	$2,413	$2,460	-$116	$0	$215	$2,291	$2,552

Figure D2. Range of State Operating Funding in 2 Fiscal Years per FTE Student by HBIs and TWIs.



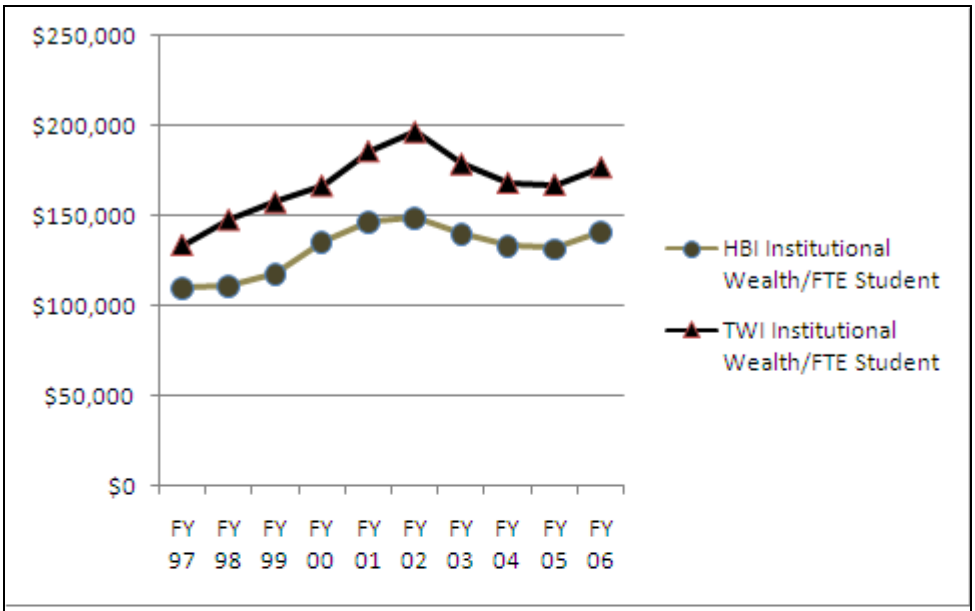
	HBI Total Private Giving/FTE Student	TWI Total Private Giving/FTE Student
FY 97	$322	$633
FY 98	$196	$659
FY 99	$169	$665
FY 00	$273	$798
FY 01	$465	$1,001
FY 02	$241	$1,160
FY 03	$25	$1,286
FY 04	$212	$1,144
FY 05	$293	$1,938
FY 06	$170	$1,816

Figure D3. Change in Total Private Giving per FTE Student by HBIs and TWIs



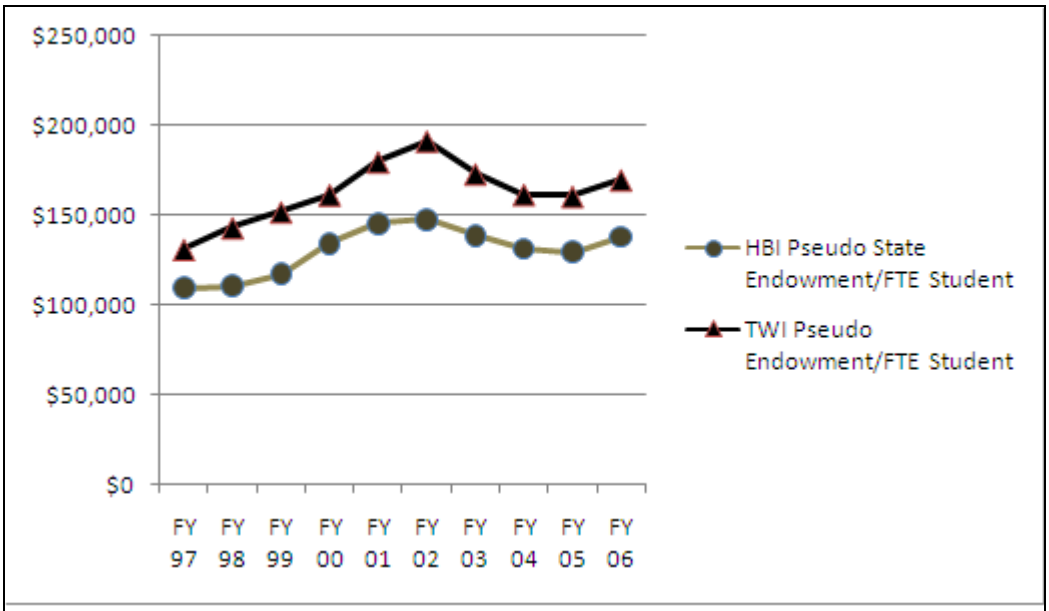
	HBI Change in State Funding/FTE Student	TWI Change in State Funding/FTE Student
FY 97	$263	$246
FY 98	$407	$488
FY 99	$707	$749
FY 00	$788	$804
FY 01	$544	$775
FY 02	($430)	-$721
FY 03	($463)	-$458
FY 04	$95	-$2
FY 05	$493	$780
FY 06	$2,235	$1,171

Figure D4. Change in State Funding per FTE Student by HBIs and TWIs.



	HBI Institutional Wealth/FTE Student	TWI Institutional Wealth/FTE Student
FY 97	$109,670	$133,346
FY 98	$111,191	$147,462
FY 99	$117,957	$157,363
FY 00	$135,464	$166,670
FY 01	$146,985	$185,982
FY 02	$149,185	$196,864
FY 03	$140,103	$178,871
FY 04	$133,393	$168,268
FY 05	$131,718	$167,284
FY 06	$140,836	$176,948

Figure D5. Institutional Wealth per FTE Student by HBIs and TWIs.



	HBI Pseudo State Endowment/FTE Student	TWI Pseudo Endowment/FTE Student
FY 97	$109,023	$130,740
FY 98	$110,332	$142,938
FY 99	$116,889	$151,677
FY 00	$134,096	$161,192
FY 01	$145,601	$179,454
FY 02	$147,855	$191,022
FY 03	$138,745	$172,788
FY 04	$131,410	$161,317
FY 05	$129,301	$160,406
FY 06	$138,047	$169,493

Figure D6. Pseudo State Endowment per FTE Student by HBIs and TWIs.

Appendix E

Institution State Operating Funding from the State Perspective

Institution State Operating Funding per $1,000 of Personal Income. Examining the institutional operating budget in context with the state budget and economy in Table E1 added further context to the analysis in addressing the research question. Using the state tax appropriations for the support of higher education collected in the annual Grapevine Survey conducted by Illinois State University's Center for the Study of Education Policy, the appropriations for operations, appropriations for higher education operations per capita, and the appropriations for higher education operations for $1,000 of personal income were retrieved. Offsetting the survey response figures that included state funding for other institutions, MHEC funding, financial aid, and other budgeted costs that are not budgeted to the institutions being studied, the state appropriation for each institution in each fiscal year was divided by the Grapevine survey response. This ratio was applied to the per capita and personal income figures. The result was a more robust data element that measured each institution's support in terms of the total population (per capita) and the state economy's (per $1,000 personal income).

The Institutional State Operating Funding per $1,000 in state personal income ranged from $0.03 in FY1998 to $1.93 in FY2002. The mean for the period was $0.33 with a median of $0.14. The standard deviation indicated a good deal of variance in the distributions. The Grapevine Survey total higher education operating funding per $1,000 in personal income ranged from $5.36 to $6.88 during this 10 year period. The mean for the institutional state funding support per capita grew until FY2004, followed by a decrease. Similarly, the mean and median for the institutional state funding support for

$1,000 of personal income remained relatively stable until FY2004. These two statistics suggested that the budget reductions for higher education have a relationship to reduced state revenues, not necessarily associated with personal income, such as corporate tax and sales tax, and state budgetary pressures to continue to fund other non-discretionary functions, such as medical assistance. The budget reductions in FY2004 were proportionately greater than any reduction in state personal income or reductions in population. Further, this may substantiate a budget trend that was apparent in Figures 7 and 10 regarding state funding.

Table E1

Descriptive Statistics – State Funding in terms of Institutional Higher Education Operations Appropriation per Capita and Appropriation per $1,000 in State Personal Income

Fiscal Year		Inst HE Ops Approp per Capita	Inst State Ops Approp per $1000 in State Personal Income
FY1997	N	13	13
	Mean	$9.0669	$.3446
	Std. Deviation	$12.92522	$.49139
	Median	$3.9000	$.1500
	Minimum	$.77	$.03
	Maximum	$48.40	$1.84
FY1998	N	13	13
	Mean	$9.3385	$.3392
	Std. Deviation	$13.24386	$.47970
	Median	$4.0500	$.1500
	Minimum	$.85	$.03
	Maximum	$49.64	$1.80
FY1999	N	13	13
	Mean	$9.9185	$.3477
	Std. Deviation	$14.11751	$.49474
	Median	$4.2500	$.1500
	Minimum	$1.43	$.05
	Maximum	$53.06	$1.86

Fiscal Year		Inst HE Ops Approp per Capita	Inst State Ops Approp per $1000 in State Personal Income
FY2000	N	13	13
	Mean	$11.0054	$.3477
	Std. Deviation	$15.54338	$.48866
	Median	$4.7100	$.1500
	Minimum	$1.81	$.06
	Maximum	$58.50	$1.84
FY2001	N	13	13
	Mean	$11.9446	$.3577
	Std. Deviation	$16.73168	$.50009
	Median	$5.0400	$.1500
	Minimum	$2.55	$.08
	Maximum	$63.15	$1.89
FY2002	N	13	13
	Mean	$12.8738	$.3677
	Std. Deviation	$17.93934	$.51202
	Median	$5.3900	$.1500
	Minimum	$2.77	$.08
	Maximum	$67.61	$1.93
FY2003	N	13	13
	Mean	$12.4508	$.3454
	Std. Deviation	$17.16612	$.47703
	Median	$5.1600	$.1400
	Minimum	$2.72	$.08
	Maximum	$64.78	$1.80
FY2004	N	13	13
	Mean	$10.7438	$.2938
	Std. Deviation	$14.71910	$.40300
	Median	$4.4300	$.1200
	Minimum	$2.48	$.07
	Maximum	$55.57	$1.52
FY2005	N	13	13
	Mean	$10.6985	$.2738
	Std. Deviation	$14.63046	$.37302
	Median	$4.4300	$.1100
	Minimum	$2.49	$.06
	Maximum	$55.28	$1.41
FY2006	N	13	13
	Mean	$11.4615	$.2754
	Std. Deviation	$15.62287	$.37456
	Median	$4.7300	$.1100
	Minimum	$2.61	$.06
	Maximum	$58.82	$1.41
Total	N	130	130

Fiscal Year		Inst HE Ops Approp per Capita	Inst State Ops Approp per $1000 in State Personal Income
	Mean	$10.9502	$.3293
	Std. Deviation	$14.84905	$.44705
	Median	$4.4400	$.1400
	Minimum	$.77	$.03
	Maximum	$67.61	$1.93

Changes in Institutional State Funding of Operations and Total Higher Education Funding. The measures of central tendency for the Change in Institutional State Funding to the Change in Total State Higher Education Funding shows the portion of the state's budget for higher education dedicated to the institution's operations (Table E2). For this analysis the institutional budget data was provided through MHEC and the state higher education budget was provided through the annual Grapevine Survey of higher education appropriations nationwide. The mean of 0.04 indicated an average of 4% of the total state higher education budget supported an institution in this survey. The median was 0.02. The range was from 0.01 to 0.16. In the case of the maximum range, this occurred in a year when the total state higher education budget was reduced along with institutional budgets. The decline in institutional funding divided by the decline in the state higher education budget produced a positive relationship since the proportionate change was being measured. In this case, one high research institution's reduction equated to 44% of the overall state reduction for the institutions.

Table E2

Descriptive Statistics - Institutional State Operating Funding as a portion of State Higher Education Funding, Change in State Per Capita Income, and Ratio of Change in State Institutional Funding to Change in Total State Higher Education Funding relating to the Change in Per Capita Income (FY1997 – FY2006)

	Mean	Median	SD	Minimum	Maximum
Institutional State Funding to Total State Higher Ed Funding	.04	.02	.05	0.01	0.16
Change in State Per Capita Income	.05	.05	.00	0.05	0.05
Ratio of Change in State Institution Funding as a portion of change in Total State HE Funding to Change in Per Capita Income	1.18	.56	1.39	0.21	5.05

N = 13

Ratio of State Institutional Funding, State Higher Education Funding and Per Capita Income. Finally, the Ratio of the Change in State Institutional Funding to Change in Total State Higher Education Funding as it relates to the Change in Per Capita Income is intended to examine the affect of the state funding of institutional operations in context with the overall state budget for higher education while factoring in the change in per capita income (Table E1). With a mean of 1.18 and a median of 0.56 and a range from 0.21 to 5.05, the standard deviation was large. It is noteworthy that if both the institution's state funding and state higher education were experiencing an increase or a reduction, the relationship would have been positive given that the per capita income was increasing each year. When state funding of the institution's operations was moving opposite of the overall state budget, this would produce a negative relationship.