Original Article

The growth and stratification of college endowments in the United States

Received (in revised form): 5th January 2009

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ABSTRACT Although annual statistics present data on the growth of endowments for specific institutions (CAE, 2006; NACUBO, 2006), relatively little research has been conducted to better understand the institutional factors that account for differential changes in the overall endowment value of institutions. This study is to determine what relationships exist between institutional characteristics and endowment growth by comparing and categorizing institutions with endowment market values in excess of US$120 million in 1995 and tracing the pattern of growth for the past decade. The set of 147 institutions included 100 private institutions and 47 public institutions of several types (that is, 94 research/doctoral universities, 8 master's universities and 45 liberal arts colleges based on the Carnegie classification). Based on the literature and discussion about endowment growth, the following 10 variables were identified as possible predictors of growth in endowments: governance, institution type, enrollment, geographical location, region, research activities, state funding, tuition revenue, alumni giving rate (AGR) and student selectivity. The findings revealed that endowment growth was closely intertwined with a variety of crucial institutional characteristic factors, including SAT scores, R&D expenditures, AGR and tuition revenue, which indicates that these institutional characteristics are significantly and positively correlated to endowment growth.
International Journal of Educational Advancement (2009) 8, 136–151.
doi:10.1057/ijea.2009.10

Keywords: endowment; institutional factors; philanthropy

INTRODUCTION

Higher education in the United States has certain features that leap out when compared to other advanced industrial societies. There is an enormous diversity among institutions in their size, functions, curricula, sources

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of support and so on (Trow, 1988). The diversity in the source of voluntary support (derived from alumni, foundations, corporations, religious groups and other sources) enables the United States' higher education system to grow at a phenomenal rate, and has allowed colleges and universities to develop their own unique characteristics through these different channels of contributions.

These contributions enabled higher education institutions to develop endowments, where income from endowments could be used to support program activities, thus improving overall financial stability (Bogue and Aper, 2000; Thelin, 2004). As a result, some universities with large endowments have become very wealthy institutions. For instance, by fiscal year 2005, the market value of endowment assets of Harvard University was US$25 billion, whereas Yale University's $15 billion ranked second (National Association of College and University Business Officers (NACUBO), 2006). As a public university, the University of Texas has $11 billion in endowment assets and is ranked fourth on the list. Of the top 20 institutions with the largest endowment assets, 15 are private institutions and 5 are public (NACUBO, 2006). Figure 1 illustrates the top 20 endowment values in 2005.

For American institutions, the NACUBO Endowment Study shows that endowment market values in recent decades have increased substantially. As *The Chronicle of Higher Education* indicates, the combined market value of all endowments in the year 2006 exceeded the gross domestic product of Hong Kong and Thailand combined

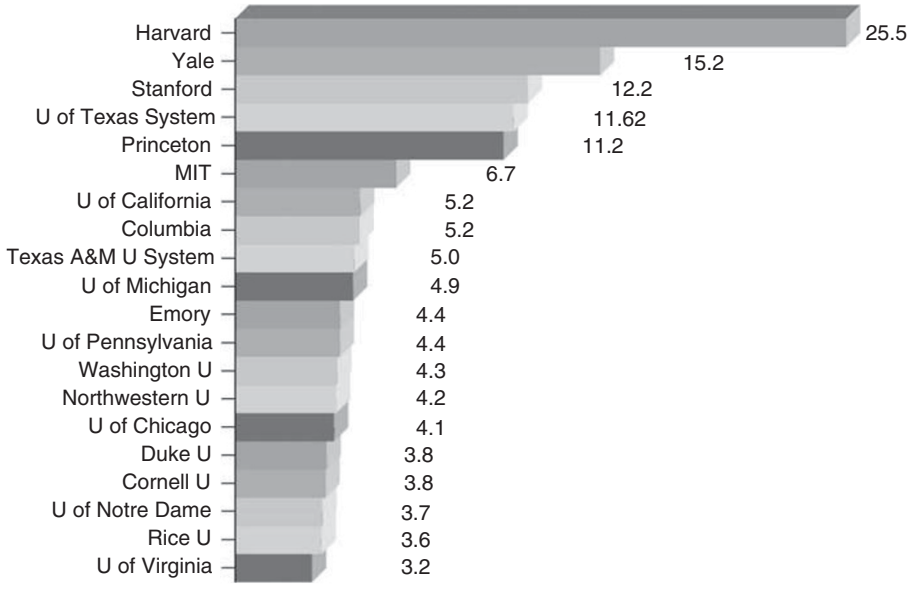

Figure 1: Top 20 endowments in 2005. Dollar amounts are in billions.
Source: The data are taken from *2005 NACUBO Endowment Study* by NACUBO (2006). Washington DC: Author.

(Di Mento, 2006). The current levels of endowment assets far exceed what was expected a decade ago. It raises questions regarding the evolution of endowments. Why do some prosper, whereas others do not? How have the value and size of endowments changed for colleges and universities in the past decades? Thus, it is beneficial to analyze institutional patterns in measuring the growth of endowment market values, to gain a better understanding of those similarities and disparities among different institutions.

LITERATURE REVIEW

As history noted, private philanthropy was the oldest source of support for higher education, particularly private institutions (Patterson, 1976). Endowments have been part of the financial support of colleges and universities for more than 300 years (American Council on Education (ACE), 2000). Harvard and Yale, for example, had endowments in 2005 valued at $25 billion and $15 billion, respectively. Although these two institutions are the best endowed in the nation, there are hundreds of others that also have substantial endowments (Hansmann, 1990). With such sizeable endowment assets, institutions start to face a series of questions. What is the real objective, role or function of the endowment? How large should an endowment be? How is the endowment related to the institution's academic mission?

Several researches have identified profound effects on the endowment in higher education development. Massy (1990) pointed out one important concept regarding endowment income, stating that the endowment grants independence to the institution from economic and political forces, thus representing more than just another source of funds. Morrell (2000) argued that institutions with larger endowments would not necessarily minimize charges for tuition fees. Morrell (2000) indicated that high-quality education is expensive, and to maintain a position at the top of the quality ladder requires both a large endowment and high student fees to exist at the same time in practice.

Swensen (2000) articulated that the endowment size was strongly correlated to institutional quality, which was based on a survey of major private institutions, categorized as research universities. This survey shows that larger, better-endowed organizations score higher in the *US News and World Report* rankings of educational institutions. Cunningham and Cochi-Ficano (2002) presented the sources of financial sensitivity that were linked to a variety of institutional features. Institutional characteristics (or traits) included academic reputation, usually measured by SAT scores, as well as its faculty–student ratio, its function and structure, and the vocational choices of its graduates. All the above affected the flow of contributions to an institution.

Geiger (1985) analyzed the logic behind the American higher education system before 1910. The results showed that some institutions showed distinct changes in growth thereafter, based on differences in the nature of voluntary support. The rapid growth of voluntary support contributions to endowments symbolized a transformation for wealthy institutions. Leslie and Ramey (1988) opined that institutional size was an important and probable trait to all donor groups, because public visibility has a vital

correlation with enrollment size. In addition, donors also responded well to those institutions of high prestige and prominence, based on the age and quality rating of the institution.

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Oster (2003) attempted to review the effect of endowment growth on college and university donor behavior. This study employed past endowment growth and several institutional variables to examine whether such growth had any impact on the source of giving from alumni and non-alumni groups. The results suggested that traditional donors seemed to reduce their gifts and donations to colleges and universities based on the perceived wealth of the institution.

METHOD

This study was undertaken to explore whether any correlations existed between a higher education institution's characteristics and the growth of its endowments, and if those characteristics could be used to predict future endowment growth. In addition, this study analyzes the relationships between endowment growth and various institutional characteristics, as well as some of the institution-specific variables, including measures of both type and quality of institution.

The units of analysis in this study are educational institutions, selected from the 1995 and 2005 Voluntary Support of Education (VSE) Report (CAE, 1996, 2006). Institutions were selected that had an endowment asset market value of more than $120 million in 1995 and that had reported to the VSE Survey for the period beginning on 1 July 1995 and ending on 30 June 2005. A total of 147 institutions were selected based on having endowment asset market values of more than $120 million in 1995. This group consists of 47 private and 47 public research universities, 8 private master's universities and 45 private liberal arts universities. (See Appendix A for a complete list of these institutions.)

Several institution-level sources of data are employed in this study. The Integrated Postsecondary Education Data System (IPEDS), developed and maintained by the United States Department of Education's National Center for Education Statistics (NCES), is a system of surveys designed to collect data from all postsecondary educational institutions and educational organizations in the United States. Another source of information is from the VSE report. The Council for Aid to Education (CAE) annually publishes a report of VSE, which is derived from a survey of annual contributions to colleges, universities and schools, and contains a listing of private endowments to higher education on a national basis (CAE, 2006).

The third source of data is from the National Science Foundation's (NSF's) Survey of Research and Development Expenditures at Universities and Colleges. The Integrated Science and Engineering Resources Data System

(WebCASPAR) is a database system containing the results of the Academic R&D Expenditures Survey. The last source of information is *US News & World Report's* (USNWR) annual '*America's Best Colleges*' ranking of colleges and universities. (See Appendix B for a complete list of these database systems.)

Multiple regression analysis was used to elaborate the relationship between various institutional factors and endowment variables. Several dependent variables are utilized in the regression models for the study, such as the total value for all 11 years, individual yearly endowment value and period endowment change. Different types of institution endowments and endowment value per student are also used as dependent variables as a basis for comparison in different regression models. Based on the literature and discussion about endowment growth, the following 10 variables were identified as possible predictors of growth in endowments: governance, institution type, enrollment, geographical location, region, research activities, state funding, tuition revenue, alumni giving rate (AGR) and student selectivity.

The regression model for the first research question is as follows:

$$\begin{aligned}\text{Endowment performance} = {} & a + b_0\text{Gov} \\ & + b_1\text{Type} + b_2\ln(\text{Enrol}) + b_3\text{Loc} \\ & + b_4\ln(\text{R\&D}) + b_5\ln(\text{Appr}) + b_6\ln(\text{SAT}) \\ & + b_7\text{AGR} + b_8\ln(\text{Tuition}) + b_9\text{Region} \\ & + \text{error term}\end{aligned}$$

where Endowment performance is (1) endowment value by year and (2) endowment per student by year; Gov is public or private institution; Type is type of institutions based on the Carnegie classification; Enrol is headcount of students at the beginning of the period; Loc is the institution's location; R&D is academic research and development expenditures at the beginning of the period; Appr is dollar amount of state appropriations at the beginning of the period; SAT is student SAT/ACT scores at the beginning of the period; AGR is alumni giving rate at the beginning of the period; Tuition is tuition revenue at the beginning of the period; and Region is geographic region of institutions.

RESULT

Endowment change by institution type

The types of institutions were based on the 1994 Carnegie classification of institutions. Figure 2 compares changes in endowment values by institutional type during the period from 1995 to 2005. Figure 2 shows that research/doctoral institutions have the largest average endowment among the three types of institutions. The average endowment value of research universities is far greater than that of the other two types of institutions. Master's and liberal arts institutes are similar to each other in both average values and growth, with the latter slightly outperforming the former in both areas.

Table 1 presents the amount and the percentage change in endowment value for each type of institution. Research universities are the leaders among the three types of institutions in both the amount and percentage change in endowment value. The increase in endowment values for research universities ($1352 million) is about

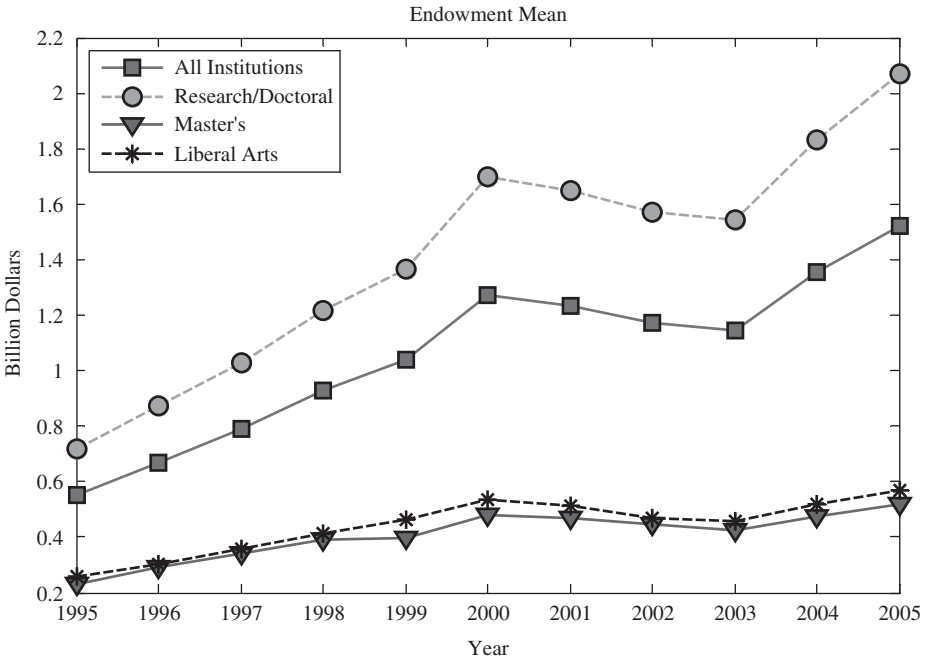

Figure 2: Average endowment values by types of institution from 1995 to 2005.
Source: The data are from *Voluntary Support of Education 1995 to 2005*, by Council for Aid to Education, 1996 to 2006, New York, NY: Author.

Table 1: Comparison of endowment values and change, by institution type

	1995	*2005*	*Amount change*	*% Change*
Research	718 408	2 070 659	1 352 251	188
Master's	232 057	519 421	287 364	124
Baccalaureate	260 038	566 413	306 375	118
All institutions	551 622	1 522 022	970 400	176

Note: The data are from *Voluntary Support of Education 1995 to 2005*, by Council for Aid to Education, 1996 to 2006, New York, NY: Author. All dollar amounts are in thousands.

four times larger than that for master's ($287 million) and baccalaureate institutions ($306 million). In terms of percentage change, research institutions, with a 188 per cent increase from 1995 to 2005, also lead the other two groups by a large margin. The other two types of institutions lag far behind in both dollar amount and percentage of growth, with an increase of only 124 per cent for master's institutions and 118 per cent for liberal arts institutions.

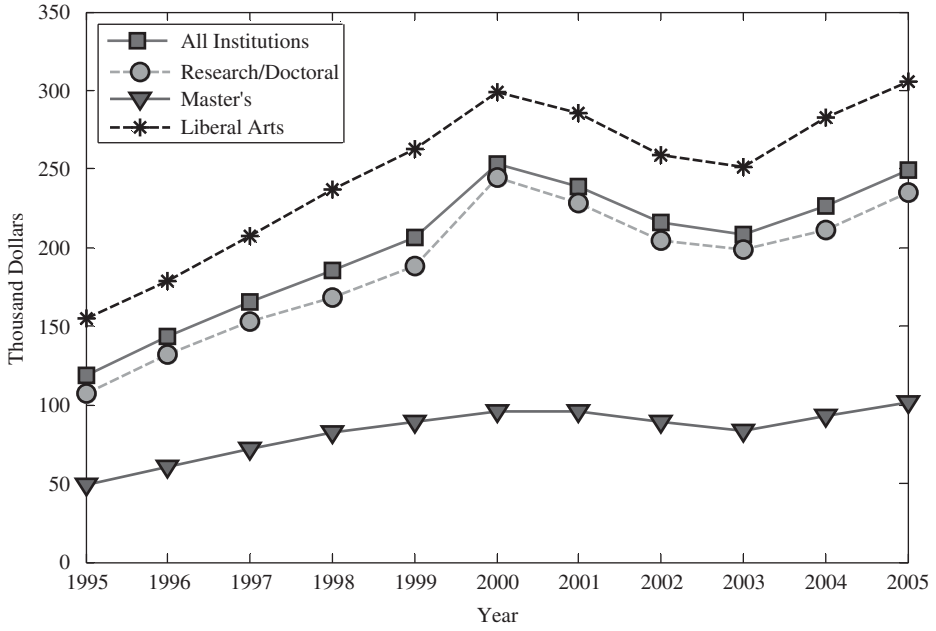

Figure 3: Average endowment per headcount enrollment, by institution type.
Source: The data are from *1995* and *2005 Voluntary Support of Education*, by Council for Aid to Education, 1996 and 2006, New York, NY: Author.

ANALYSIS

Even when the comparison takes the size of enrollment into consideration by dividing the total endowment by the headcount of student enrollment, research institutions still take the lead in the growth trend. As endowment dollars per headcount enrollment amounts shown in Figure 3 and Appendix C reveal, liberal arts institutions have the highest amount of endowment per student among all types of institution in all years. Master's universities had the lowest endowment per headcount enrollment throughout the entire time frame. Again, research institutions enjoy the largest growth of 120 per cent, higher than the other two types of institutions (105 per cent for master's and 98 per cent for liberal arts institutions).

Regression result

The regression analysis in this study used the overall 11-year endowment market value as the dependent variable. The independent variables are those institutional characteristics listed in Table 2. These include student enrollment (enrollment), public or private institution (governance), state appropriations for each institution (appropriations), total tuition revenue for each institution (tuition), research and development (R&D) expenditures, entering students' SAT scores (SAT), AGR, research university, master's university, institution located in an urban area, institution located in a suburban area, and institution located in the Northeast, Midwest, South and West.

As shown in Table 2, all dependent variables and those with the

Table 2: Summary of endowment regression model, by headcount enrollment and types of institutions

	Endowment		*Endowment per headcount enrollment*[a]		*Research endowment*		*Liberal art endowment*	
	B	*Sig.*	*B*	*Sig.*	*B*	*Sig.*	*B*	*Sig.*
(Constant)	−20.461	0.000	−12.827	0.000	−18.692	0.000	−6.252	0.031
Enrollment	0.493*	0.000	—	—	0.133*	0.040	0.187*	0.008
Appropriation	−0.009	0.149	−0.009	0.388	−0.016*	0.042	−0.024*	0.043
Tuition	−0.140*	0.000	−0.194*	0.000	0.376*	0.000	−0.286*	0.000
R&D	0.050*	0.000	0.065*	0.000	0.086*	0.000	0.061*	0.000
SAT	4.061*	0.000	3.551*	0.000	3.447*	0.000	2.810*	0.000
Private	−0.379*	0.000	−1.134*	0.000	0.112	0.288	—	—
AGR	2.535*	0.000	3.396*	0.000	3.723*	0.000	0.300*	0.210
Research	0.552*	0.000	−0.423*	0.000	—	—	—	—
Master's	0.436*	0.000	−0.238*	0.016	—	—	—	—
Urban	−0.076	0.153	−0.013	0.838	0.180	0.097	−0.251*	0.000
Suburban	−0.049	0.371	0.026	0.695	0.192	0.091	−0.049	0.252
Northeast	−0.065	0.201	−0.261*	0.000	−0.243*	0.000	0.249*	0.000
Midwest	0.095	0.063	−0.140*	0.019	−0.041	0.530	0.265*	0.000
South	−0.053	0.278	−0.088	0.128	−0.225*	0.000	0.160*	0.034
R^2	0.625		0.746		0.665		0.555	
N	1544		1544		969		491	

Note: Also included in the model are year fixed effects. *$P \leq 0.05$.
[a]The dependent variable, endowment per headcount enrollment, was entered using its logged value. The state appropriation, tuition, and R&D entries also used their log per headcount enrollment value in this model.

continuous value of independent variables, such as enrollment, state appropriation, tuition, R&D expenditures and SAT scores, were transformed into their natural log values. Year fixed effects have been included in the model to adjust for inflation, and also to better show the difference among the data and to see whether the model is sensitive to the yearly changes. The dependent variables in Table 2 are all institutions' endowment, endowment per headcount enrollment and endowment of research institutions and liberal art institutions.

From the results of the regression model in Table 2, several significant variables for predicting the outcome of the endowment regressions are evident, such as tuition revenue, R&D expenditures, SAT scores and AGR. SAT scores appeared to be a significant factor for all four models in Table 2. One interpretation could be correlated to institutional prestige. The best endowed institutions are usually those highly esteemed or highly selective institutions with higher SAT scores, such as Harvard, Yale or Stanford. Higher SAT scores are normally associated with an institution's level of selectivity that contributes to raising its academic prestige. Regression results, which showed SAT scores as being significant variables in four regressions in Table 2, seemed to demonstrate this phenomenon and indicated that those institutions having higher SAT scores

were poised for more rapid enhancement of endowment income.

Table 2 illustrates that tuition revenues posted mixed results. It shows a negative correlation for three regression models, but a positive correlation in only the research institution endowment regression. These results suggest that lower tuition revenue was still a significant factor for predicting endowment increases in the per headcount enrollment endowment and for liberal arts endowment models. In contrast, being an institution with large tuition revenue was a positive and significant predictor variable for the research institution group. The result that higher tuition revenue is a positive and significant factor for a research institution's endowment is likely owing to the fact that about half of the research institutions sampled were public institutions. Decreases in state appropriations and increasing budget constraints are forcing institutions to seek alternative financial resources to raise operating capital, such as by charging higher tuition fees and pursuing a variety of steps aimed at increasing voluntary support.

In today's increasingly competitive higher education environment, not only is there a need to raise tuition fees, but public institutions must also participate in fund-raising activities and do everything possible to increase endowment assets. Increasing tuition fees are sometimes only a triggered effect for public institutions that look to enhance endowment revenues when encountering financial constraints caused by state funding shortfalls. For the other half of the private research institutions, most are high selectivity and in a better position to raise tuition fees based on student demands and market competition. Overall, results for research institutions seem to offer a predictive value for tuition revenue and a corresponding increase of endowment revenue.

R&D expenditures appear to be a statistically significant variable for endowment and per headcount endowment models, as well as for research and liberal arts institution endowments, as shown in Table 2. R&D expenditures have served as an indicator for predicting endowment value, because institutions with more research activities would also be more likely to engage in more aggressive endowment-enhancing activities, with the aim of raising money for the support and welfare of staff and faculty, facility maintenance and establishment of new research (Geiger, 1985).

AGR is another significant institutional variable. AGR was an important variable that could be used to predict endowment performance and based on the fact that such factors are indicated as being positive and significant for many equations in this study. The percentage of alumni who gave donations to their schools was often used as an indicator of alumni satisfaction, as the *USNWR* suggested, and also served as part of the criteria in the ranking of *America's Best College* from *USNWR* (USNWR, 2006). One explanation is inferred from the Leslie and Ramey's study (1998), in which they pointed out that 'the motivations for alumni to make contributions could be based on the desire to repay the institution for educational purposes or because of a heightened recognition of academic benefits provided by the

institution' (p. 121). This could suggest that those alumni who graduated from high-academic and well-esteemed institutions, which usually had higher SAT scores and R&D expenditures, seemed to be in a better position economically to repay the academic benefit.

In determining whether there existed any regional impact on endowment value or variety in the source of support, all selected institutions were grouped into four different regions, based on US Census Bureau classifications. Table 2 indicates that the West was the significant regional factor for predicting endowment per headcount enrollment, and also for the research institutional endowment, but was not significant for liberal arts institutional endowments. Furthermore, the size of the institution, which was measured by student enrollment, was also a significant characteristic for endowment, suggesting that large institutions are in a better position to generate higher endowment dollar values.

CONCLUSION AND DISCUSSION

The main idea of this research is aimed at analyzing institutional patterns and determining whether those similarities and disparities existing among different institutions provided a plausible explanation for endowment growth. In the first stage of descriptive analysis, different institutional classifications were found to reflect changes in endowment value allotments, giving rise to a variety of endowment distributions.

The all-years' regression results indicate that the institutional characteristics relied significantly on the factor of SAT scores. Often associated with an institution's selectivity and prestige, SAT scores are shown as being a positive and influential factor for the all years' regression. R&D expenditures appear to be a statistically significant variable for endowment and per headcount endowment models, as well as for research and liberal arts institution endowments, as shown in Table 2. R&D expenditures serve as an indicator for predicting endowment value, because more research activities usually require increased endowment fundraising in order to raise money needed to support those activities (Geiger, 1985).

Another factor also shown as being significant is that of tuition revenue, which came from the result based on four overall year endowment regressions. Tuition revenue appears to be a negatively significant factor in the all-years' endowment, per headcount endowment, and liberal arts endowment models. However, tuition is shown as being both positive and significant for research institutions endowments.

In this study, AGRs are shown to be of great significance in endowment growth. Substantial evidence exists to demonstrate how AGRs are a direct indication of alumni satisfaction (Leslie and Ramey, 1988; Loessin *et al*, 1988; Brittingham and Pezzullo, 1990; Taylor and Martin, 1995; Ehrenberg (2001); Oster, 2003). Alumni donations have always been the main source of voluntary support, and represent the largest share of educational contributions. Therefore, institutions must focus on strategies that will make contributing more appealing to donors, while at the same time, fostering

stronger relationships and ties with alumni, because these relationships are significantly rewarding in the long run.

Overall, the significant factors found in this study (R&D expenditures, SAT scores, student enrollment, research institutions and endowment growth) are closely intertwined with institutional quality and the size of the institutions. The findings further suggest that institutions with higher selectivity of students *and* high AGR with higher student enrollment *and* conducting more R&D activities contributed more toward endowment growth value.

This study was limited to those institutional characteristics considered to be important in the literature review. There are other institutional characteristics, which might also be important to endowment growth. As some institutional characteristics have not yet been explored in other literature, the results from this study can be used in further studies as a source of comparison. In future studies, researchers may attempt to combine institutional characteristics with managerial functions to provide more explicit explanations for endowment growth.

REFERENCES

American Council on Education. (2000) *Understanding College & University Endowment*. Washington DC: ERIC Document Reproduction Service No. ED 450 620.

Bogue, E.G. and Aper, J. (2000) *Exploring the Heritage of American Higher Education: The Evolution of Philosophy and Policy*. Phoenix: The Oryx Press.

Brittingham, B.E. and Pezzullo, T.R. (1990) The Campus Green: Fund Raising in Higher Education. Washington DC: School of Education and Human Development, George Washington University, pp. 3–91. ASHE-ERIC Higher Education Report No. 1.

Council for Aid to Education. (1996) *1995 Voluntary Support of Education*. New York, NY.

Council for Aid to Education. (2006) *2005 Voluntary Support of Education*. New York, NY: Author.

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

Di Mento, M. (2006, June 2) How endowment of 247 major nonprofit organizations performed? *The Chronicle of Higher Education*, p. B3.

Ehrenberg, R.G. and Smith, C.L. (2001) *What a Difference a Decade Makes: Growing Wealth Inequality among Ivy League Institutions*, New York, NY. ERIC Document Reproduction Service No. ED 470 059.

Geiger, R. (1985) After the emergence: Voluntary support and the building of American research universities. *History of Education Quarterly* 25(3): 369–381.

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

Leslie, L. and Ramey, G. (1988) Donor behavior and voluntary support for higher education institutions. *The Journal of Higher Education* 59(2): 115–132.

Loessin, B.A., Duronio, M.A. and Borton, G.L. (1988) Understanding Fund-raising Effectiveness in Higher Education: Laying a Foundation. Final Report prepared for the Exxon Education Foundation. Pittsburgh: University of Pittsburgh. Working Paper No. 1.

Massy, W.F. (1990) *Endowment: Perspectives, Policies, Management*. Washington DC: Association of Governing Boards of Universities and Colleges.

Morrell, L.R. (2000, February) The true purpose of your endowment. *NACUBO Business Officer*: 42–45.

National Association of College and University Business Officers. (2006) *2005 NACUBO Endowment Study*. Washington DC: National Association of College and University Business Officers.

Oster, S.M. (2003) Is There a Dark Side to Endowment Growth? In: F.K. Alexander and R.G. Ehrenberg (eds.) *Maximizing Revenue in Higher Education*, New Directions for Institutional Research, Vol. 119. San Francisco: Jossey-Bass, pp. 81–90.

Patterson, F.D. (1976) *The College Endowment Funding Plan*. Washington DC: American Council on Education.

Swensen, D.F. (2000) *Pioneering Portfolio Management: An Unconventional Approach to*

Institutional Investment. New York, NY: The Free Press.

Taylor, A.L. and Martin, J.C. (1995) Characteristics of alumni donors and non-donors at a Research I, public university. *Research in Higher Education* 36(3): 283–302.

Thelin, J.R. (2004) Higher Education and the Public Trough: A Historical Perspective. In: E.P.S. John and M.D. Parsons (eds.) *Public Funding of Higher Education: Changing Contexts and New Rationales*. Baltimore, MD: The Johns Hopkins University Press, pp. 21–39.

Trow, M. (1988) American higher education: Past, present, and future. *Educational Researcher* 17(3): 14–23.

U.S. Census Bureau. (2006) U.S. Census Bureau maps and cartographic resources. Washington DC: U.S. Census Bureau, from http://www.census.gov/geo/www/maps, accessed 30 December 2006.

U.S. News & World Report. (2006) How U.S. News ranks colleges. Washington DC: U.S. News & World Report. from http://www.usnews.com/usnews/edu/college/rankings/about/index_brief.php, accessed 12 November 2006.

APPENDIX A

See Table A1.

Table A1: Summary of institutions for inclusion in this study

Public research/doctoral		*Endowment market value 2005 ($000)*	*State*	*Beginning fall 2005 enrollment (headcount)*	*Governance*
1.	Michigan, U	4 931 340	MI	54 352	Public
2.	Texas A&M U – College Station	4 026 500	TX	46 587	Public
3.	Texas, U of – Austin	2 346 900	TX	50 377	Public
4.	CA, U of – Berkeley	2 333 210	CA	32 814	Public
5.	Virginia, U of	2 196 640	VA	22 641	Public
6.	Minnesota, U of – Twin Cities	2 010 480	MN	65 247	Public
7.	CA, U of – Los Angeles	1 868 840	CA	37 563	Public
8.	NC at Chapel Hill, U of	1 432 550	NC	26 878	Public
9.	Pittsburgh, U	1 398 210	PA	33 796	Public
10.	Washington, U of	1 387 890	WA	42 907	Public
11.	Purdue U	1 340 540	IN	69 001	Public
12.	Wisconsin, U of – Madison	1 327 020	WI	40 309	Public
13.	Michigan State U	1 324 640	MI	44 836	Public
14.	Penn. State U	1 231 300	PA	81 664	Public
15.	Ohio State U	1 224 420	OH	58 365	Public
16.	Georgia Institute of Technology	1 206 570	GA	17 115	Public
17.	Illinois, U	1 148 870	IL	67 336	Public
18.	Indiana U	1 107 500	IN	92 070	Public
19.	Delaware, U of	1 077 100	DE	19 784	Public
20.	CA, U of – San Francisco	1 070 090	CA	4079	Public
21.	Nebraska, U of	1 042 290	NE	45 215	Public
22.	Cincinnati, U of	1 032 000	OH	35 244	Public
23.	Kansas, U	954 943	KS	29 590	Public
24.	Florida, U of	835 698	FL	49 650	Public
25.	Iowa, U	786 101	IA	29 745	Public
26.	Louisville, U	608 000	LA	21 725	Public
27.	Washington State U	553 871	WA	23 330	Public
28.	Tennessee, U of	547 352	TN	25 111	Public
29.	Kentucky, U of	524 230	KY	26 545	Public
30.	Georgia, U of	517 170	GA	33 408	Public
31.	Colorado, U of	517 151	CO	52 448	Public
32.	CA, U of – Davis	510 013	CA	30 065	Public
33.	Houston, U of	505 921	TX	56 791	Public
34.	Rutgers, The ST. U of NJ	496 292	NJ	50 552	Public
35.	SUNY – Buffalo	463 215	NY	27 276	Public
36.	Missouri, U of – Columbia	460 143	MO	27 003	Public
37.	William and Mary, college of	437 733	VA	7575	Public
38.	Iowa State U	435 701	IA	26 380	Public
39.	Alabama, U of – Tuscaloosa	409 258	AL	20 881	Public
40.	NC State U at Raleigh	380 541	NC	29 957	Public
41.	West Virginia U	368 529	WV	25 255	Public
42.	Virginia Poly. Inst. & St. U	364 978	VA	27 619	Public
43.	Utah, U of	353 744	UT	28 933	Public
44.	Auburn U	349 686	AL	22 928	Public
45.	Oregon State U	349 289	OR	19 162	Public
46.	Alabama, U of – Birmingham	285 369	AL	16 572	Public
47.	Kansas St. U	251 310	KS	23 151	Public

Table A1: Continued

Public research/doctoral	*Endowment market value 2005 ($000)*	*State*	*Beginning fall 2005 enrollment (headcount)*	*Governance*
Private research/doctoral				
1. Harvard U	25 221 800	MA	19 731	Private
2. Yale U	15 091 000	CT	11 359	Private
3. Stanford U	12 205 000	CA	17 079	Private
4. Princeton U	11 200 000	NJ	6673	Private
5. Massachusetts Inst. of Tech.	6 712 400	MA	10 320	Private
6. Columbia U	5 190 560	NY	23 234	Private
7. Northwestern U	4 454 450	IL	17 762	Private
8. Washington U	4 383 300	MO	13 380	Private
9. Pennsylvania, U of	4 369 780	PA	23 704	Private
10. Chicago, U of	4 137 490	IL	14 111	Private
11. Cornell U	3 859 610	NY	20 129	Private
12. Notre Dame, U of	3 650 220	IN	11 479	Private
13. William Marsh Rice U	3 600 000	TX	4973	Private
14. Duke U	3 292 000	NC	14 150	Private
15. Dartmouth C	2 776 330	NH	5704	Private
16. Southern California, U of	2 746 050	CA	32 160	Private
17. Vanderbilt U	2 598 230	TN	11 294	Private
18. Johns Hopkins U	2 009 840	MD	18 882	Private
19. Brown U	1 917 630	RI	8004	Private
20. New York U	1 643 180	NY	32 213	Private
21. Case Western Reserve U	1 546 000	OH	9095	Private
22. California Inst. Of Tech	1 520 480	CA	2169	Private
23. Rochester, U of	1 368 010	NY	8365	Private
24. Boston College	1 328 530	MA	14 528	Private
25. Southern Methodist U	1 008 510	TX	10 901	Private
26. Texas Christian U	955 665	TX	8632	Private
27. Wake Forest U	906 803	NC	6504	Private
28. Tufts U	880 538	MA	9602	Private
29. Lehigh U	844 672	PA	6641	Private
30. Carnegie-Mellon U	837 459	PA	9803	Private
31. Syracuse U	818 258	NY	16 317	Private
32. Boston U	799 082	MA	30 101	Private
33. Tulsa, U of	770 498	OK	4084	Private
34. Georgetown U	760 116	DC	13 233	Private
35. Baylor U	745 751	TX	13 799	Private
36. George Washington U	733 801	DC	24 092	Private
37. Rensselaer Poly. Inst.	624 279	NY	7521	Private
38. Northeastern U	557 450	MA	22 932	Private
39. Miami, U of	526 091	FL	15 250	Private
40. Brandeis U	519 500	MA	5189	Private
41. Pepperdine U	483 400	CA	7963	Private
42. Worcester Polytechnic Inst	327 280	MA	3827	Private
43. Marquette U	266 772	WI	11 510	Private
44. Loyola U of Chicago	259 118	IL	14 764	Private
45. Loma Linda U	236 312	CA	4010	Private
46. Rockefeller U	1 556 945	NY	196	Private
47. St. Louis U	—	MO	—	Private
Private Master's				
1. Richmond, U of	1 207 570	VA	4492	Private
2. Trinity U	733 261	TX	2718	Private
3. Santa Clara U	509 149	CA	8213	Private

Table A1: Continued

Public research/doctoral	*Endowment market value 2005 ($000)*	*State*	*Beginning fall 2005 enrollment (headcount)*	*Governance*
4. Rochester Inst. of Tech	498 802	NY	15 338	Private
5. St. Thomas, U of	351 563	MN	10 474	Private
6. Loyola U – New Orleans	317 122	LA	5748	Private
7. Loyola Marymount U	284 455	CA	8855	Private
8. Samford U	253 446	AL	4416	Private
Private liberal arts				
1. Williams College	1 514 250	MA	2024	Private
2. Grinnell College	1 390 550	IA	1556	Private
3. Pomona College	1 298 630	CA	1550	Private
4. Wellesley College	1 275 770	MA	2289	Private
5. Swarthmore College	1 164 070	PA	1474	Private
6. Amherst College	1 154 570	MA	1653	Private
7. Smith College	1 035 540	MA	2864	Private
8. Berea College	861 679	KY	1553	Private
9. Middlebury College	721 839	VT	2357	Private
10. Vassar College	671 354	NY	2475	Private
11. Oberlin College	617 693	OH	2827	Private
12. Lafayette College	587 418	PA	2303	Private
13. Bowdoin College	578 206	ME	1677	Private
14. Wesleyan U	564 879	CT	2777	Private
15. Macalester College	541 293	MN	1900	Private
16. Carleton College	536 094	MN	1951	Private
17. Washington and Lee U	531 992	VA	2168	Private
18. Hamilton College	529 708	NY	1842	Private
19. Colgate U	502 378	NY	2831	Private
20. Bryn Mawr College	498 056	PA	1777	Private
21. Denison U	478 490	OH	2229	Private
22. Bucknell U	472 070	PA	3546	Private
23. Holy Cross, Col. Of the	465 304	MA	2745	Private
24. Mount Holyoke College	460 815	MA	2145	Private
25. DePauw U	452 792	IN	2401	Private
26. Furman U	429 766	SC	3009	Private
27. Colby College	424 205	ME	1821	Private
28. Colorado College	407 922	CO	2044	Private
29. Haverford College	394 715	PA	1172	Private
30. Davidson College	382 159	NC	1714	Private
31. Trinity College	379 277	CT	2456	Private
32. Earlham College	379 000	IN	1226	Private
33. Wabash College	354 346	IN	853	Private
34. Reed College	338 260	OR	1340	Private
35. Claremont Mckenna College	336 012	CA	1066	Private
36. Franklin and Marshall College	327 351	PA	2032	Private
37. Whitman College	311 821	WA	1512	Private
38. Union College	298 300	NY	2192	Private
39. Wheaton College	293 983	IL	2898	Private
40. Occidental College	279 828	CA	1887	Private
41. Agnes Scott College	279 697	GA	1002	Private
42. Southwestern U	279 293	TX	1277	Private
43. South, U of the	252 914	TN	1492	Private
44. Rhodes College	222 809	TN	1615	Private
45. St. Lawrence U	211 478	NY	2279	Private

APPENDIX B

See Table B1.

Table B1: Summary of independent variables

Variable	*Value label*	*Source of data*
Governance	Public Private	VSE Report
Institution type	Research University Master's College or University Baccalaureate (Liberal Art College)	IPEDS
Degree of urbanization (institution's locale)	Urban Suburban Rural	*USNWR*
Tuition revenue	Total tuition revenue	IPEDS
Geographic region	Northeast Midwest South West	US Census Bureau
Enrollment	Headcount of students	VSE Report
Research activities	NSF Survey of R&D Expenditures at Universities and Colleges	WebCASPAR
Appropriations	Annual state appropriation	IPEDS
Student selectivity	SAT/ACT scores	IPEDS
Alumni giving rate	Percentage of alumni who make donation to their institutions during each year	*USNWR*

APPENDIX C

See Table C1.

Table C1: Endowment per headcount student enrollment, by year and institution type

	All institutions	*Research*	*Master's*	*Liberal arts*
95	118.3933	106.8972	49.3923	154.6744
96	143.5873	132.4904	60.6619	179.1738
97	165.8164	152.9009	72.4039	207.3263
98	185.0593	167.9969	82.3819	237.4582
99	206.6073	188.2842	89.4869	262.6936
00	253.0847	244.4781	96.1022	298.9710
01	238.6255	228.1143	95.6352	285.7691
02	216.1512	204.7946	89.4146	259.0839
03	208.6677	198.7273	83.0375	251.1036
04	226.4178	210.8415	93.0339	282.3216
05	249.4608	235.1070	101.4216	305.4434
Growth	131.0675	128.2098	52.0293	150.7690
Growth (%)	111	120	105	98

Note: The data are from *Voluntary Support of Education 1995 to 2005*, by Council for Aid to Education, 1996 to 2006, New York, NY: Author. All dollar amounts are in thousands.