

Wealth in Higher Education Institutions

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1. Introduction

Sophie Tucker once said: "I've been rich, and I've been poor. Believe me, honey, rich is better." Few college or university presidents would disagree.

Wealth brings important advantages to colleges and universities. At the most basic level, wealth allows colleges to purchase inputs that make possible a better quality product: better faculty, better buildings, laboratories and libraries, and even, through the use of merit aid, better students. Further, wealth may allow administrators to devote significant resources to long term goals and to avoid having to make budget adjustments in response to short term financial fluctuations. There are huge disparities in levels of wealth among the three thousand or 50 institutions of higher education in this country. Some institutions with large amounts of wealth charge their students only a small fraction of their actual educational expenses. Other institutions with little or no wealth can spend only as much as tuition levels will allow.

In the next section we investigate some conceptual issues relating to the definition of wealth in higher education institutions. We argue that the "total wealth" of an institution should include resources both in the form of "stocks" such as physical and financial assets and in the form of regular income flows to a college or university such as government appropriations and annual gifts and grants.

In the third section we turn to the measurement of wealth in institutions of higher education. In our comparisons of institutional wealth we categorize schools on the basis of control: public or private, and type: university, four-year college, or two year college. The picture of the wealth status of various schools that emerges is quite interesting; while many of the very wealthiest schools are private, the vast majority of private schools have relatively little wealth; public institutions dominate the upper half of the wealth distribution. Universities tend to be wealthier than four year colleges, while four year institutions are typically wealthier than two year

schools. We contrast our definition of total wealth with the traditional and narrower measure that includes only net endowment. Significant practical problems are associated with the measurement of some components of wealth in institutions of higher education, particularly physical assets.

In section 4 we consider the variability of income from three major sources of wealth: endowments, government appropriations, and annual gifts and grants. Although the experience of any one individual school may differ, on average, income from endowment wealth tends to vary more than income from wealth in the form of appropriations. Gift income tends to be less variable than endowment income but more variable than income in the form of appropriations. We also examine the variability of total wealth, summing across these three important sources of income. A short conclusion follows.

Section 2. Wealth in Institutions of Higher Education

Institutional wealth is easier to recognize than to define, in part because it may take several forms. Most would agree that the small number of well endowed private colleges and universities are wealthy. Most would also concur that the vast majority of private institutions with little or no endowment are not wealthy. However, besides endowment, which may be restricted or unrestricted in use, we also might want to consider as wealth the value of land, buildings and equipment and other physical assets owned by a school, regular annual gifts and grants that a school is free to use for current operations, and regular annual appropriations from state or local governments. Furthermore, it may be appropriate to offset the endowment of an institution by the amount of its indebtedness in order to arrive at a measure of unencumbered wealth.^{1 2}

¹ Winston (1988) has noted the increased importance of institutional borrowing in recent years.

² Net endowment equals restricted and unrestricted endowment minus indebtedness. This is a somewhat conservative measure since many institutions only borrow in order to arbitrage the interest differential between their endowment portfolio return and the, typically tax-free, interest rate on debt

Some of the items in the above list of assets seem to correspond more closely to an intuitive notion of "wealth" than others; it is instructive to consider why these assets might be considered wealth or "wealth-like."

A rigorous definition of an "old-fashioned" notion of personal wealth (one that antedates human capital considerations) might be as follows: "Wealth is what allows an individual to consume a greater level of society's resources than that permitted solely by the sale of his services." The analogy of this in higher education is that wealth permits an educational institution to spend more in providing educational services, research, room and board, etc., than it receives in student revenues. The income from wealth, in the form of endowment income, annual gifts and grants, and government appropriations, allows many public and private colleges and universities to drive a wedge between the price charged to students, in the form of tuition, and the costs or expenditures incurred by these schools in providing a college education.³

Three attributes of annual flows of funds affect the degree to which they should be counted as wealth. First, there may be instances in which government appropriations, or other funds, come in an explicitly restricted form, for example, if a line item in a state or county budget requires that appropriated dollars be spent in a specific way that has little value to an institution.⁴

issued by an institution of higher education. Unless specified otherwise, from here on, the term endowment should be interpreted as endowment net of institutional indebtedness.

³ To continue the analogy of a big household, capitalizing the government revenues of public institutions can be viewed in the same way as capitalizing the expected social security benefits of a family as a part of their retirement wealth.

⁴ In a broad sense, the "wealthness" of all assets varies with the extent to which their use is restricted. Both financial and physical assets may have constraints on their use. Unrestricted endowment may have more value than restricted endowment because the latter is encumbered: if the activities supported by restricted endowment funds are valued at only a fraction of the value of unrestricted spending, the restricted endowment should be discounted by that same fraction. The value of an institution's physical assets may also depend upon explicit or implicit constraints on their use or disposal.

Second, the flow of these funds is variable from year to year. While the variability of income flows may be affected to some extent by development office activities, lobbying, or other activities, some variability is almost inevitable. The flow of income in the form of interest, dividends, and capital gains from an endowment will vary from year to year: even the most conservative portfolio management by a college or university cannot eliminate the effects of major macroeconomic phenomena on the performance of an endowment. Changes in federal, state, and local tax policy, changes in attitudes toward higher education, national and regional economic expansions and contractions, as well as chance contribute to the uncertainty of gifts and grants and government support for higher education. We discuss and measure the variability of wealth in more detail in Section 4 below.

Third, and perhaps most importantly, income from gifts or appropriations is less temporally fungible than "income" from an endowment. In hard financial times a school with a sizeable endowment may decide to spend some of its endowment principal in order to maintain desired levels of educational quality or financial aid. This choice is not an option for schools without an endowment.⁵ Moreover, income from endowment or gifts can typically be saved during flush times or if there are no pressing expenditure needs; government appropriations and some grant monies generally revert back to state or local coffers or grant agencies if they are not spent within a particular fiscal period. In fact, as Niskanen (1971) has forcefully argued, savings from government appropriations are likely to reduce future income flows; just the opposite effect of endowment savings.

Many schools count on annual appropriations and gifts in their planning and budgeting each year, yet there is no guarantee that these dollars will be at the disposal of the school when needed. For these income sources, there is no stock of financial or physical assets that yields a return, rather there is

⁵ It may be possible in some cases for higher education institutions (HEIs) to borrow against future flows of non-endowment income. Even where this is possible, the transaction costs of doing so are a discouraging factor.

an intangible that might be referred to as the "goodwill" of donors, grantors, and legislator⁵ or voters. The future beneficence of these groups may well depend on the behavior or performance of an institution and on other factor⁵ beyond the control of an individual institution.

Annual flows of gifts, grants, and state and local government appropriations are an important source of funding for higher educational institutions. Although it is probably incorrect not to differentiate at all between endowment and wealth-like assets, it is clearly better to attempt to include non-endowment based sources of funds in measuring wealth than to exclude them altogether.

Section 3. Wealth Across Institutions

An ideal measure of institutional wealth would include the full value of an institution's physical and financial resources including endowment, the capitalized value of all non-endowment income flows and the capitalized value of services from physical capital. Unfortunately, due to the inadequacy of nonprofit accounting procedures, acceptable data on the value of physical capital are not available.⁶ For the purposes of our empirical analysis we

⁶ Measuring physical assets' contribution to the wealth of an institution is complicated by the fact that the value of services provided by assets such as buildings, equipment, art collections, etc., are frequently unrelated to the value of these assets on an institution's balance sheet. This is the result of two factors that can pull in opposite directions. The first is that physical assets are frequently valued on an institution's balance sheet using historical cost which may be a small fraction of their replacement cost. This tends to produce a systematic downward bias in the measurement of institutional wealth. The second factor producing a discrepancy between the value of services provided by physical assets and their book value is that an institution's current configuration of physical assets may not be consistent with its current needs. (In such a situation we normally assume that an economic agent would buy or sell assets to achieve consistency, but this may not be feasible for colleges and universities. This is true both because institutions' desire to maintain the spacial integrity of their campuses may prohibit the sale or rental of buildings and because redeployment efforts may be seen as violating an implicit agreement with donors, thus endangering the future flow of resources.) Both of these factors reflect the fact that colleges and universities neither depreciate or

will define institutional wealth more narrowly, namely, endowment plus the capitalized value of annual non-endowment income flows.⁷

Our measure of college and university wealth is best viewed as resources that allow an institution to set its level of tuition and fees below the operating cost of educating a student. In many colleges and universities tuition and fees account for a surprisingly small fraction of the "income" an institution generates. The price that students pay, even those not on financial aid, is often much less than the amount a school expends on their education. The non-tuition income a school receives can be considered as income that derives from wealth.

i. Wealth measured at the institutional level.

Although our measure of the total wealth of an institution is not a comprehensive one, we have argued that it is superior to the more commonly used wealth measure, endowment. Nonetheless, for comparative purposes it is useful to take a glimpse at the size and distribution of endowments across schools. Table 1 below provides data on the number of public and private institutions that can sustainably finance various percentages of their own annual educational and general (E&G) expenditures from endowment income.^{8 9}

appreciate their physical assets to reflect economic reality. Even if schools did account for these changes in economic value, the issues related to reconfiguring physical assets would remain.

⁷ We recognize that this measure is too restrictive in scope. However, we believe it is superior to measures that ignore the capitalized value of non-endowment income flows. Furthermore, because institutional physical wealth and financial wealth are likely to be highly correlated, the omission of physical asset wealth should not change the qualitative results of our analysis.

⁸ This measure understates true wealth differentials insofar as wealthier institutions use their wealth to increase E&G expenditures.

⁹ One of the more influential and important works in the economics of higher education was the Ford Foundation report published in 1969 that encouraged schools to move away from basing operating budgets on annual endowment yield, a policy that led to budget whip-sawing, and instead to adopt a system in which some fixed percentage of endowment was to be spent each

These expenditures comprise the budget for instructional and administrative activities at colleges and universities. As is evident from this table, endowment is concentrated in the hands of a very few educational institutions. Of 2189 colleges and universities in our sample, almost two thirds, 65%, have little or no endowment at all. Only 1.4% have an endowment sufficient to sustainably finance 20% of annual E&G expenditures per student. Interestingly, a disproportionate majority of these schools are four year colleges. Fewer than 13% of all institutions have an endowment capable of financing 5% or more of their annual E&G expenditures. Thus, the vast majority of institutions are very dependent upon public appropriations, gifts and grants, and tuition and fees.

TABLE 1

Endowment wealth is concentrated primarily in the hands of private colleges and universities. Figure 1 provides a vivid depiction of the extent to which private institutions dominate public institutions in holdings of endowment wealth. In this figure the distribution of endowment wealth is broken down into deciles, and the proportion of each decile accounted for by public and private schools is displayed. The "hour-glass" shape of this figure is unmistakable; as you move up the distribution, a higher and higher proportion of the schools represented are private and a lower and lower proportion are public. This distribution of endowment across public and private institutions is consistent with the common perception that wealth is concentrated in the hands of a small number of private institutions.

FIGURE 1

We have argued that endowment is an overly restrictive measure of

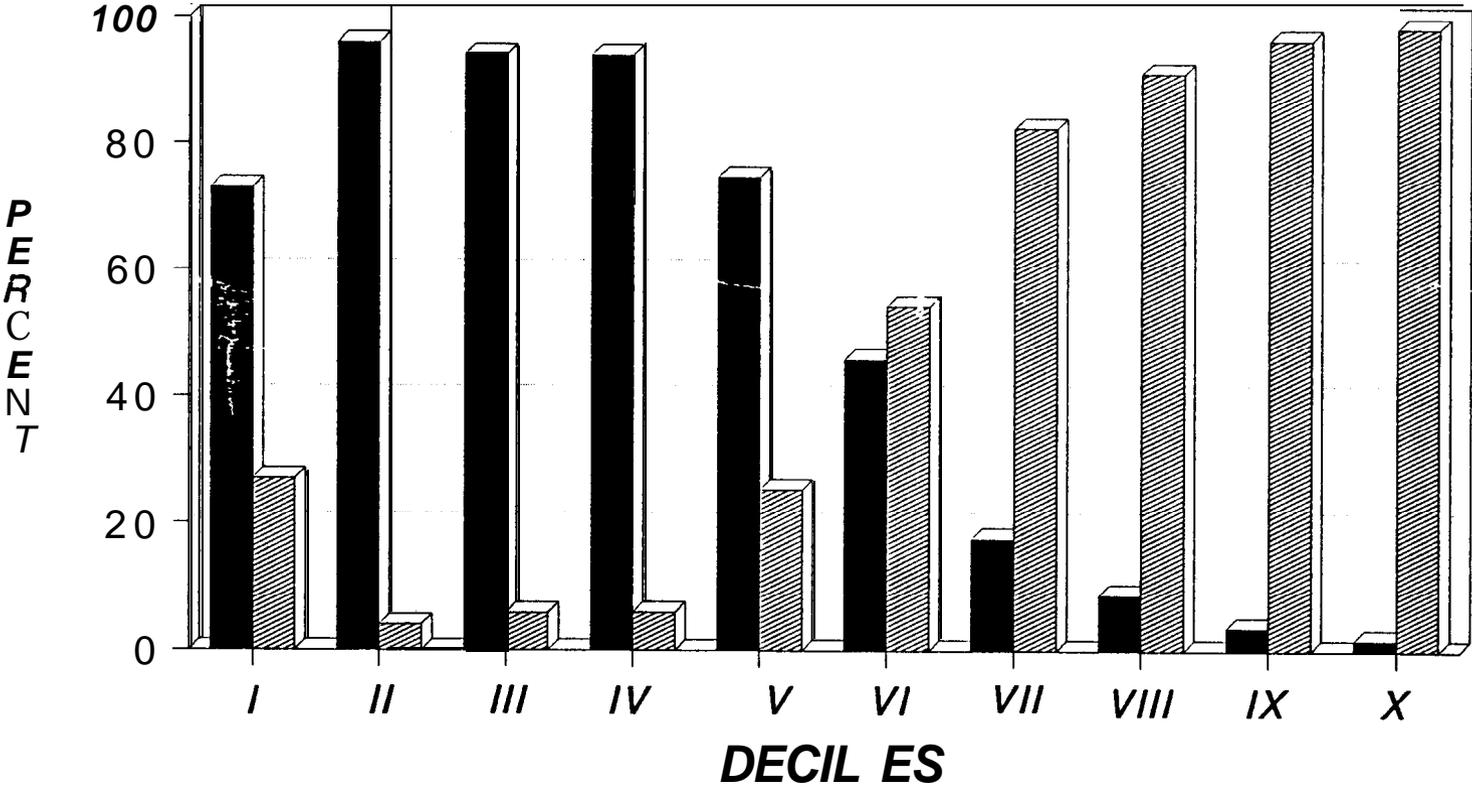
year. Of course, this recommendation was not of much practical value to the majority of schools that have no significant endowment. (See the data presented below.) We define the sustainable rate of annual availment of endowment to be the maximum rate of availment that will allow the real level of endowment (i.e., accounting for inflation) to be maintained. We will assume that rate to be 5%. This figure closely approximates the actual behavior of the typical college or university as documented in the 1989 NACUBO Endowment Study.

Distribution of Endowments

AS a Percentage of Education & General (E&G) Spending ACROSS Schools

5% of Endowment of E&G	Control	universities		Other 4-Year Institutions		2-Year Institutions	
		N	Percent of Universe	N	Percent of Universe	N	Percent of Universe
Less than 1% of E&G	Public	40	1.83	297	13.60	732	33.40
	Private	8	0.37	277	12.70	67	3.06
Between 1% and 5% of E&G	Public	12	0.55	17	0.78	8	0.37
	Private	24	1.10	391	17.90	46	2.10
Between 5% and 10% of E&G	Public	2	0.09	0	0.00	0	0.00
	Private	12	0.55	133	6.08	7	0.32
Between 10% and 15% of E&G	Public	0	0.00	0	0.00	1	0.05
	Private	5	0.23	56	2.56	1	0.05
Between 15% and 20% of E&G	Public	0	0.00	0	0.00	0	0.00
	Private	1	0.05	19	0.87	2	0.09
More than 20% of E&G	Public	0	0.00	0	0.00	1	0.05
	Private	1	0.05	28	1.28	1	0.05

ENDOWMENT DECILE DENSITIES DISTRIBUTION BY CONTROL



institutional wealth. To the extent that regular non-endowment income flows also represent wealth, Table 1 above misrepresents the degree to which wealth is concentrated in the hands of a few, primarily private, schools. There are many public institutions that receive very large annual appropriations from their state legislatures or other government sources, and the net present value.¹⁰ of these appropriations, were they to remain constant after correcting for inflation, might well be larger than the endowments of many colleges and universities that are considered "wealthy."

Legislative appropriations for public institutions are not the only source of non-endowment related regular income flows. As we indicated above, for many colleges and universities, annual alumni donations, gifts, and grants that can be spent for on-going expenses are an important source of revenue. These too should be considered in measuring institutions' wealth.¹¹

Employing this more comprehensive measure of wealth has two advantages. First, it more accurately measures the ability of colleges and universities to finance educational expenditures. Second, it provides a means of comparing the wealth of public and private institutions.

There are clearly problems inherent in any effort to incorporate the

¹⁰ The net present value (also called the discounted value or capitalized value) is the current value of a flow of income that accrues over time. To find the net present value of a flow of income, the income accruing in each year in the future is divided by a discount factor appropriate to that year, and the resulting quotients are then summed. The discount factor appropriate to each year is equal to one plus the interest rate (also called the discount rate), the latter expressed as a decimal number, all raised to the nth power, where n is the number of years between the present and the year in which the income flow occurs. (So, if the interest rate is 10% the present value of \$100 to be paid 7 years from today is:

$$\frac{\$100}{(1.10)^7} = \frac{\$100}{1.95} = \$51.32.$$

¹¹ We include only private gifts, grants and contracts in computing our measure of wealth. The HEGIS data we use does not allow us to separately identify private gifts. We do not include government grants and contracts since these funds typically pay for sponsored research and are best viewed as direct payment for these services.

capitalized value of future income flows, and so our efforts must be taken as an attempt to do no more than approximate the wealth of colleges and universities. One obvious problem is that we have no way of knowing exactly what the future income flows will be. Neither do the schools of course, and this is why none of them would regard the present value of anticipated future revenue flows as equivalent to the same dollar amount of endowment. For example, the extent to which public institutions are rightfully described as wealthy depends upon the assurance that the annual legislative appropriations will continue, and perhaps, in some contexts, on the extent to which the continuing flow of money is contingent upon "good behavior" as defined by the controlling political entity.¹² On the other hand, in a particular economic downturn, income flows from endowments may decline more than the level of government appropriations for higher education.

Ideally, to approximate schools' wealth, we would somehow adjust for the level of uncertainty and the extent of institutional control over income flows in calculating the net present value of the expected future income flows. However, beyond picking some rather arbitrary adjustment factor, it simply isn't clear how to go about this, and to avoid being misleadingly precise, we will not attempt to do so. In our calculations, we have assumed that each school will continue to receive, in perpetuity, the real level of public appropriations and gift and grant income that it enjoyed in 1985-86.¹³ To arrive at the net present value of these flows, we assume a discount rate of

¹² Some public schools receive government funds on the basis of a formula that may be based on enrollment, tuition, and institutional spending. These formulas, however, are created and can be modified by legislatures.

¹³ Clearly, a problem is created if a school was engaged in a major capital fund drive during 1985-86. We have made no attempt to correct for this problem or other randomness introduced by selecting a single year on which to base these measurements. Unfortunately, more recent data that might capture the affects of stock market gyrations in the late 1980's on endowment values and the affect of the more recent economic downturn on government higher education appropriations are not available at this date. (See the recent articles in The Chronicle of Higher Education by Jaschik and Cage and Blumenstyk on the impact of state budget deficits on public higher education.)

8%.¹⁴ We add current endowment to this net present value to derive our comprehensive measure of wealth. We refer to this measure as "total wealth."

Figure 2 is based on our measure of "total wealth" and is directly comparable to Figure 1. A comparison of Figures 1 and 2 reveals that there are striking differences in the distribution of endowment and the distribution of total wealth across schools. On the basis of endowment alone, private schools appear wealthy and public schools appear relatively poor. Based on total wealth, however, private schools are poor while public schools are relatively wealthy. The most notable change is the decline in the proportion of public institutions in the lowest deciles of wealth. Private institutions still comprise a majority of the wealthiest decile, but just barely - and the next six wealthiest deciles are populated predominantly by public colleges and universities. Common perceptions of the distribution of wealth across public and private institutions do not reflect this broader conception of institutional wealth. (In Appendix A we provide information on the distribution of wealth in the form of appropriations and gifts and grants.)

FIGURE 2

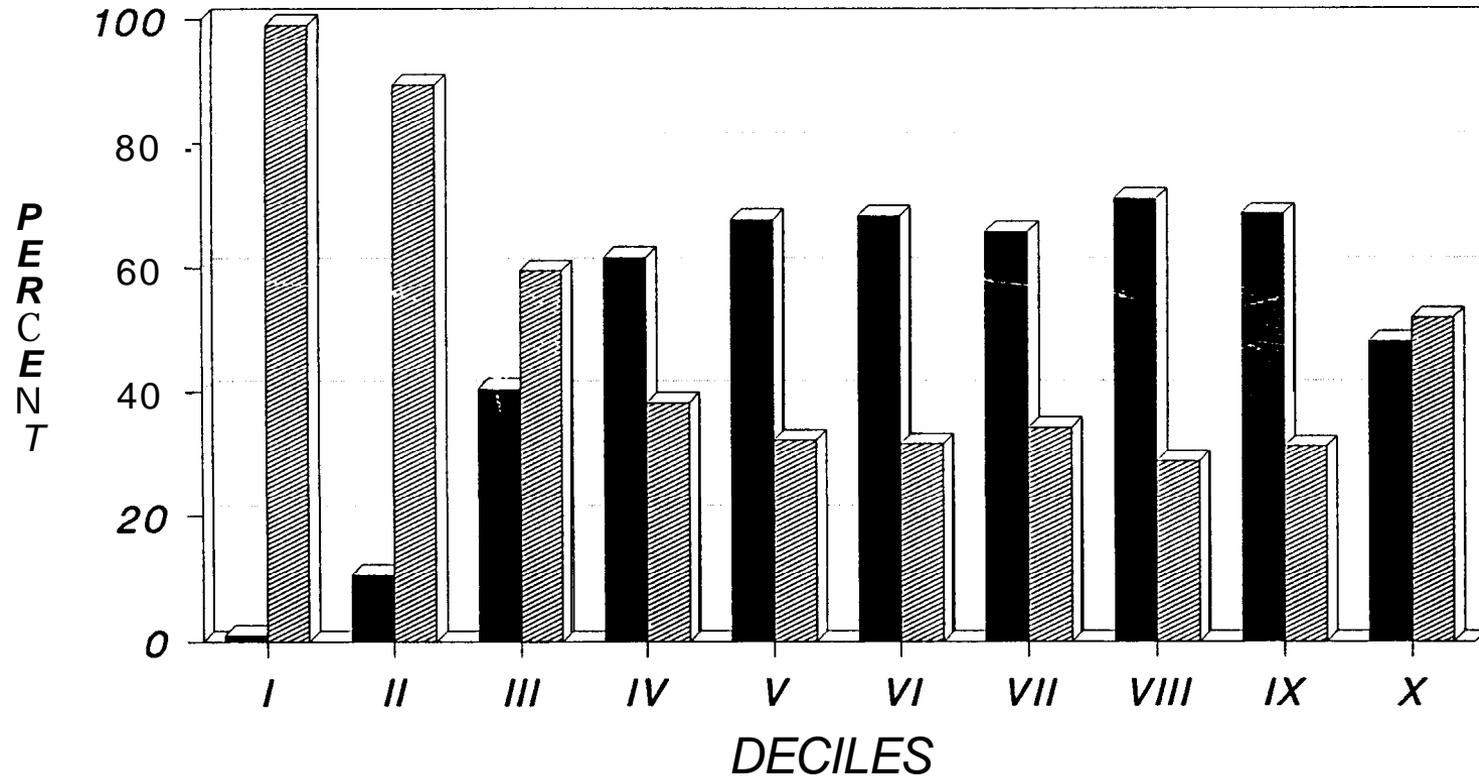
ii. Wealth measured on a per student basis.

We would expect larger schools to have both greater expenses and larger revenues than smaller schools, and so it is useful to measure wealth on a per student basis. Table 2 below shows that there is great variation in both endowment and total wealth measured on a per student basis.¹⁵ The first column of Table 2 measures wealth per student by endowment alone and the

¹⁴ If we assume that nominal interest rates increase point for point with increases in actual inflation, the appropriate discount rate is the real interest rate. Thus, our choice of 8% is likely to underestimate the wealth of public institutions.

¹⁵ To arrive at the denominator for our per student measures we have simply added the number of undergraduate and graduate students at an institution. We have discovered no convincing method for apportioning wealth between graduate and undergraduate students.

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second column measures total wealth per student. For total wealth, the data in Table 2 show that the wealthiest 10% of schools have a level of wealth per student that is more than 12 times greater than that of the poorest 10% of schools¹ (The dollar figures are \$167,937 per student versus \$13,440 per student.) The distribution of endowment per student is even more skewed. Over 30% of all schools have no endowment at all while schools in the richest decile have six times more endowment per student than schools in the next richest decile. The figures are stark. Endowment per student for the richest 10% of schools is more than four orders of magnitude greater than that of the poorest 40% of schools -- \$39,702. vs. \$1.651

TABLE 2

Appendix B contains lists of the twenty richest private schools, public schools, and all schools based on endowment per student. No public schools appear on the list including all schools. Appendix B also contains lists of the twenty richest private schools, public schools, and all schools based on total wealth per student. Five public schools appear on the list including all schools.

iii. Wealth comparisons across institutional type and control.

There is a clear relation between institutions' type and control and their level of wealth. The data in Table 3 give average total wealth per student for public and private two year colleges, public and private four year colleges, and public and private universities. Two year colleges are significantly less wealthy than four year colleges. Four year colleges appear less wealthy than universities, although this may simply reflect the fact that we were unable to apportion universities' wealth between the graduate and undergraduate divisions.

TABLE 3

One of the striking findings shown in Table 3 is that when we employ our measure of total wealth that includes the capitalized value of annual income flows, public four-year and two-year colleges are wealthier on average than

**Distribution of Endowment and Wealth Using Capitalized Flows
Does Not Include Tuition**

<u>Wealth</u>	<u>Mean Endowment Per Student</u>	<u>Mean Total Wealth Per Student</u>
1st Decile	0.00	13440.70
2nd Decile	0.00	25845.49
3rd Decile	0.00	34890.54
4th Decile	6.66	41555.13
5th Decile	90.25	47702.99
6th Decile	488.95	53614.19
7th Decile	1431.23	61662.65
8th Decile	3263.12	71353.50
9th Decile	6313.11	87539.99
Richest 10% Of Schools	39702.48	167936.74

**Total Wealth Per Student
By Control and Type**

<u>Control</u>	<u>Type</u>	<u>Mean Total Wealth Per Student</u>
Public	University	121147.63
	Other 4-Year Institutions	74149.16
	2-Year Institutions	57579.83
Private	University	165495.43
	Other 4-Year Institutions	51921.37
	2-Year Institutions	35686.25

private four year and two year colleges. It is only the private universities that are wealthier than their public counterparts. Public perceptions of the relative wealth of public and private institutions are clearly affected by the great endowment wealth of a few elite private universities. We suspect that most people tend to underestimate the magnitude of direct public subsidies to public colleges and universities.

Section 4. Variability in the Sources of Wealth

In general, an asset that yields a stream of income with a high degree of variability will be worth less than an asset that yields a stream of income with identical mean but that varies less over time.¹⁶ This is because of the costs associated with matching expenditures to fluctuating income and/or the cost of borrowing or other mechanisms designed to smooth the flow of available resources over time. College and university administrators, for example, would find it difficult to significantly alter the level of operating expenditures at their schools from year to year. Therefore, holding the average level of annual income constant, we would consider the wealth of an institution to be greater if the variability of the annual income derived from that wealth was lower.¹⁷

This is relevant to our comparison of wealth in public and private institutions of higher education. We have argued that the traditional focus on endowment substantially exaggerates the wealth of private schools relative to public institutions because it ignores the capitalized value of annual appropriations. In this section we compare the variability of income flows,

¹⁶ Of course, in situations where there are opportunities to diversify risk, variability will play a less important a role in determining asset values.

¹⁷ In a recent paper Nordhaus [1990] proposes a technique for evaluating the sensitivity of an institution's budget to macroeconomic factors such as inflation and interest rates. This risk analysis approach reveals that college and university budgets can be expected to be significantly buffeted by changes in these variables.

from the three major component8 of wealth, endowment, annual gifts and grants, and government appropriations. We also look at the variability of the aggregate of these three income sources for institutions. If it is the case that income flows at public colleges and universities are less variable than income flow8 at private institutions, then the traditional endowment-based wealth measure is even further distorted.

The information used in our analysis of variability was drawn from a time series of HEGIS financial data for the year8 1974-75 through 1985-86.¹⁸ Each school's income flow in each year was divided by its enrollment in that year, so all data are in per capita terms.

We estimated a simple time trend regression of income flow8 for each school in our sample. We have chosen to measure variability by dividing the standard error of regression for each school by the mean value of the dependent variable for that school. This statistic has the important advantage of permitting meaningful comparisons of variability for data with dissimilar means. (As was documented in the previous section, there are huge differences in the magnitudes of endowments, appropriations and gifts across schools.)

The measure of the variability of income flows that we employ bears importantly on the ability of school8 to predict their flow of income. To the extent that there are distinct upward or downward trends in the flow of income to a school, administrator8 may be able to better anticipate future changes in income. Our measure of variability takes into consideration this possibility.

The data presented in Table 4 reveal important differences in the variability of income in the form of state and local appropriations, endowment

18 Schools were dropped from the individual entries in Table 5 if they did not receive at least 5% of their E&G expenditure8 from the respective revenue source. All of the data were adjuated for inflation using the all items CPI.

income, annual gifts and grants, as well as the sum of these income sources.¹⁹ We have again grouped institutions by control and type in reporting our results.

TABLE 4

In public institutions our variability measure for government appropriations ranges from about 0.10 for universities to 0.13 for four year colleges and 0.17 for two year schools. In contrast, for private schools the measure of variability for endowment income ranges from a low of 0.14 for universities up through 0.23 for four year schools to 0.28 for two year colleges. For both public and private schools and all control types, the variability measure for gifts is consistently higher than for either endowment income or state and local appropriations. For private schools that receive state and local appropriations, the variability of this income source is smallest at universities and somewhat higher at two and four year institutions.

In the last panel of Table 4 we examine the variability of the sum of endowment income, government appropriations, and annual gift and grant income for each school. We refer to this sum as total income. For all three types of schools the measure of variability for private schools is roughly two times the magnitude of the measure of variability for public institutions. These data support our contention that common perceptions of institutional wealth, based on endowment or endowment per student, are severely distorted. Public HEIs not only dominate the higher wealth decile, their non-tuition income tends to be less variable as well.

Two caveats are appropriate. The first concerns the issue of control over wealth mentioned earlier. Institutional control over wealth is not as readily quantifiable as the variability of income flows. However, on an ordinal scale, institutions certainly have significantly more control over

¹⁹ The data reported for endowment income through HEGIS does not include capital gains or losses. To the extent that this component of endowment return is more volatile than dividends and interest, our measure of variability for endowment income is understated.

Income Variability *
By Income Source

<u>Control</u>	<u>Type</u>	<u>N</u>	<u>State & Local Appropriations</u>	<u>N</u>	<u>Gifts & Grants</u>	<u>N</u>	<u>Endowment Income</u>	<u>N</u>	<u>Income from All sources</u>
Public	University	54	0.1052	21	0.1793	1	0.0412	57	0.0823
	4-Year Colleges	299	0.1306	13	0.3262	0	0.0000	319	0.0963
	2-Year Colleges	647	0.1764	4	0.5784	0	0.0000	681	0.1051
Private	University	3	0.1316	34	0.1895	18	0.1466	40	0.1414
	4-Year Colleges	35	0.1585	698	0.2887	281	0.2323	787	0.2115
	2-Year Colleges	1	0.1569	55	0.3385	19	0.2802	70	0.2695

* Income Variability is measured as follows: we estimate a simple time trend for income for each institution, and obtain the standard error of the regression divided by the mean to construct a measure of relative income variability. We then calculate the simple average of the within-category individual institutional values of this statistic.

endowment than either gifts and grants or government appropriations. This means that the fact that income in the form of state and local appropriations is less variable than gift and grant and endowment income does not necessarily mean that state and local appropriations can be "counted on" any more than the other sources of wealth. Second, some part of the variability in endowment and gift income may be attributable to major fund raising campaigns periodically engaged in by many private schools. We have no way of determining the extent to which this affects our results.

Section 5. Conclusion

Our data demonstrate that common perceptions of the relative wealth of public and private higher education institutions are inaccurate. Once non-endowment forms of wealth are considered, public higher education institutions dominate the richer deciles of the institutional wealth distribution. In fact, the great majority of private HEIs have almost no wealth at all. Further, the fact that the variability of public HEIs' income flows is significantly lower than that of private HEIs means that the lower "wealth" is in no way compensated for by greater security of income flows.

There are several implications of our findings. First and foremost, any public policies predicated on the notion that private HEIs are wealthy, or wealthier than public HEIs, are almost certain to be misguided. Changes in tax policy that would discourage gifts to private HEIs or that would tax the endowments of private non-profit HEIs are two examples of potentially misguided policies.

Our work also highlights the potentially devastating affect on public institutions of significant reductions in government support to higher education. Public institutions' wealth is heavily concentrated in the form of government appropriations, and the quality and quantity of educational services these schools provide is closely tied to this support.

Another implication of our findings is that private colleges, most of

whom are poor and tuition dependent, may be vulnerable to the decline in the high school graduating cohort between now and the mid-1990's. The pressure on state budgets, and the fact that public HEIs may well have excess capacity during the same period, make it unlikely that the states will provide resources to assist private HEIs. Given the large number of private HEIs, their importance in U.S. higher education, and the limited resources available to them, private foundations can play a very useful social role by encouraging the development of consortia that would assist private HEIs in planning how to cope with tightening financial constraints.²⁰

Finally, our results suggest that both consumers of educational services and public policy makers need to focus more attention on the real resources that public and private HEIs expend in providing educational services. Students at private HEIs (and their parents) may think, because they are paying more, that they are enjoying greater levels of educational inputs compared to public institutions, when in fact this may not be the case. Policy makers may think that private HEIs are grossly inefficient, or that public HEIs are very efficient, because the tuition levels at private HEIs are high relative to public HEIs.²¹ These misperceptions result from focusing attention on tuition rather than other economic variables. More research is needed on where HEIs get their resources and on what is likely to happen to these resource flows in the future.

^m The Consortium for the Advancement of Private Higher Education performs a function along these lines.

²¹ Recently announced tuition increases for the 1991-92 academic year suggest that the current rate of increase in tuition at public institutions may exceed that at private schools.

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APPENDIX A

THE DISTRIBUTION OF WEALTH-LIKE ASSETS

Table 1A provides a closer look at the extent to which government appropriations finance E&G expenditures. It is clear that for public institutions government appropriations are an important if not a dominant source of revenue. Fully 97% of the public institutions in our sample receive state and local appropriations sufficient to fund at least 20% of their annual E&G expenditures. The number of private schools that have endowment income greater than 20% of E&G expenditures is very small compared to the number of public schools with appropriations greater than 20% of E&G. Indeed, there are more private schools that receive at least 20% of their annual E&G expenditures in the form of government appropriations than are able to finance 20% of these expenditures through endowment.

Table 1A

Table 2A contains the comparable-information for gift and grant wealth as does Table 1 in the text for endowment wealth. Over 20% of the private schools in our sample receive annual gifts and grants sufficient to finance 20% or more of their E&G expenditures. No public schools receive a similar amount. As with endowment, four year colleges are over-represented among schools with large annual gift and grant income as a proportion of E&G expenditures.

Table 2A

Table 3A provides another perspective on the variability of income from three sources over time. This table was constructed by taking, for each school, the mean value of each (inflation adjusted) income flow for the period covered, then measuring the deviation from the mean for each year, and, finally, averaging these deviations across schools. Endowment income for private schools was affected by the recession of 1974-75 in 1975 and 1976 but then shows a generally upward climb to 1982. Appropriations from state and local governments to public institutions were hit by the recession of 1974-75 and the economic downturn of the early 1980's. There is less of a clear pattern to the trend in gift and grant income. These data, together with that presented in the body of the text, do not suggest that either public or private schools have an advantage in predicting income flows based on past patterns.

TABLE 3A

**Distribution of State and Local Appropriations
As a Percentage of Education & General (E&G) Spending Across Schools**

State & Local Appropriations	Control	Universities		Other 4-Year Institutions		2-Year Institutions	
		N	Percent of Universe	N	Percent of Universe	N	Percent of Universe
Less than 1% of E&G	Public	0	0.00	1	0.05	2	0.09
	Private	30	1.37	744	34.00	84	3.84
Between 1% and 5% of E&G	Public	0	0.00	0	0.00	4	0.18
	Private	12	0.55	92	4.20	13	0.59
Between 5% and 10% of E&G	Public	0	0.00	0	0.00	4	0.18
	Private	2	0.09	47	2.15	3	0.14
Between 10% and 15% of E&G	Public	0	0.00	0	0.00	1	0.05
	Private	0	0.00	6	0.27	0	0.00
Between 15% and 20% of E&G	Public	0	0.00	2	0.09	20	0.91
	Private	0	0.00	1	0.05	0	0.00
More than 20% of E&G	Public	54	2.47	311	14.20	711	32.50
	Private	7	0.32	14	0.64	24	1.10

Distribution of Gifts and Grants

As a Percentage of Education & General (E&G) Spending Across Schools

Gifts & Grants	Control	Universities		Other 1-Year Institutions		2-Year Institutions	
		N	Percent of Universe	N	Percent of Universe	N	Percent of Universe
Less than 1% of E&G	Public	0	0.00	148	6.16	608	27.80
	Private	0	0.00	39	1.78	35	1.60
Between 1% and 5% of E&G	Public	24	1.10	140	6.40	124	5.66
	Private	10	0.46	141	6.44	27	1.23
Between 5% and 10% of E&G	Public	28	1.28	21	0.96	8	0.37
	Private	21	0.96	222	10.10	14	0.64
Between 10% and 15% of E&G	Public	2	0.09	2	0.09	2	0.09
	Private	13	0.59	182	8.31	14	0.64
Between 15% and 20% of E&G	Public	0	0.00	3	0.14	0	0.00
	Private	3	0.14	121	5.53	12	0.55
More than 20% of E&G	Public	0	0.00	0	0.00	0	0.00
	Private	4	0.18	199	9.09	22	1.01

Mean Residual of Endowment Income
By Control and Type of Institution

		YEAR												
		N	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
CONT- ROL	INST													
Publ	Univ	12	312,984	-1,158,538	237,710	-44,453	178,251	618,655	175,686	580,813	-83,814	-678,429	-194,293	55,426
	2-Yr	12	613,930	399,082	451,417	47,115	-694,658	-804,254	-490,333	-1,091,599	87,066	379,893	301,477	800,863
Priv	Univ	310	2,450,893	-457,975	149,839	-1,197,191	-231,311	-532,464	-1,025,884	-574,681	-797,062	-796,518	1,196,090	2,417,912
	4-Yr	3321	164,780	-466	-54,092	-74,966	-78,665	-59,367	-46,181	83,913	35,625	-2,020	40,246	4,539
	2-Yr	269	6,486	15,601	4,092	-38,001	-22,884	-8,599	1,915	27,750	24,133	39,457	1,539	-50,859

Mean Residual of State and Local Appropriations
By Control and Type of Institution.

		N	Year												
CONT- ROL	TYPE		1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	
Publ	Univ	907	-770,965	883,302	1,724,382	2,671,713	2,369,795	9,292	-3,063,415	-4,782,034	-5,661,130	-3,322,936	3,148,510	7,349,002	
	4-Yr	3493	-203,703	416,813	33,2991	421,903	412,842	225,2681	-405,234	-921,185	-1,051,661	-976,5671	928,497	1,477,059	
	2-Yr	8032	-264,5371	83,6031	238,0281	444,8051	113,672	-95,978	-289,135	-304,1371	-320,430	-142,845	86,596	431,799	
Priv	Univ	75	434,815	-127,9461	542,348	-16,4741	-67,273	-379,816	-323,783	-493,945	-667,894	-352,954	227,574	1,049,373	
	4-Yr	417	-73,262	17,3601	122,4441	43,1211	9,314	-39,1221	-19,9361	-76,807	-64,403	12,587	3,205	167,120	
	2-Yr	12	-104,1591	30,033	67,238	36,2171	70,834	39,849	-60,7451	-45,795	-77,951	-20,218	-23,194	87,892	

Mean Residual of Gifts and Grants
By Control and Type of Institution

		N	YEAR												
CONT- ROL	INST		1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	
Publ	Univ	300	905,345	788,331	554,856	-59,801	-542,027	-900,842	-1,567,369	-1,379,114	-244,311	-21,516	1,036,279	1,542,436	
	4-Yr	137	325,1741	-100,937	-343,663	60,788	363,456	-144,3371	-417,481	-335,786	504,4451	39,3091	70,908	447,186	
	2-Yr	49	-266,1301	560,8551	873,044	714,3531	-815,9001	-845,548	-640,015	-393,9201	-152,7091	77,5421	318,694	634,157	
Priv	Univ	537	1,011,050	1,250,741	60,019	360,8611	-729,4121	-1,296,798	-1,284,965	-1,983,781	-656,1711	348,169	974,322	2,449,464	
	4-Yr	8280	19,881	34,724	58,999	31,376	-28,3961	-70,359	-77,5431	-77,6021	-12,476	1,9211	51,171	81,167	
	2-Yr	813	-32,666	-4,384	75,314	9,097	7,4341	-33,005	-50,5461	-25,8151	11,437	28,413	8,152	4,950	

Richest 20 Schools Based on Endowment Per Student

Rank	Richest 20 Private Schools	Richest 20 Public Schools	Richest 20 Schools
1	Princeton University	University of Virginia	Princeton University
2	Harvard University	University of Delaware	Harvard University
3	Grinnell College	University of Michigan, Ann Arbor	Grinnell College
4	Swarthmore College	University of Pittsburg	Swarthmore College
5	Agnes Scott College	University of Cincinnati	Agnes Scott College
6	Yale University	University of California, Los Angeles	Yale University
7	Amherst College	University of California, Berkeley	Amherst College
8	Pomona College	University of Vermont	Pomona College
9	Williams College	SUNY Buffalo	Williams College
10	Alaska Pacific University	Michigan Technological University	Alaska Pacific University
11	Berea College	University of Minnesota, Minneapolis St. Paul	Berea College
12	Jewish Theol. Seminary of Amer.	University of North Carolina, Chapel Hill	Jewish Theol. Seminary of Amer.
13	Wellesley College	Ohio State University	Wellesley College
14	Stanford University	Lincoln University	Stanford University
15	M.I.T.	University of Nevada-Reno	M.I.T.
16	Smith College	Purdue University	Smith College
17	Washington University	Maine Maritime Academy	Washington University
18	University of Rochester	Rutgers University, New Brunswick	University of Rochester
19	University of Chicago	University of Idaho	University of Chicago
20	Trinity University	University of Auburn	Trinity University

Richest 20 Schools Based on Total Wealth Per Student

Rank	Richest 20 Private Schools	Richest 20 Public Schools	Richest 20 Schools
1	Jewish Theol. Seminary of Amer.	SUNY Maritime College	Jewish Theol. Seminary of America
2	Pomona College	New Mexico Inst. of Mining & Tech.	Pomona College
3	Princeton University	Univ. of California, Los Angeles	Princeton University
4	M.I.T.	Univ. of North Carolina, Chapel Hill	M.I.T.
5	Harvard University	University of California, Berkeley	Harvard University
6	Johns Hopkins University	University of Virginia	Johns Hopkins University
7	Thomas Jefferson University	University of Florida	Thomas Jefferson University
8	Yale University	North Carolina State, Raleigh	Yale University
9	Columbia University	University of Georgia	Columbia College
10	Alaska Pacific University	Georgia Inst. of Technology	SUNY Maritime College
11	Stanford University	Texas A&M University	New Mexico Inst. of Mining and Tech.
12	Grinnell College	Virginia Commonwealth University	Univ. of California, Los Angeles
13	Swarthmore College	SUNY College at Purchase	Alaska Pacific University
14	Mills College	Clemson University	Stanford University
15	Agnes Scott College	University of Hawaii at Manoa	Grinnell College
16	Amherst College	University of Michigan, Ann Arbor	Swarthmore College
17	Berea College	University of Arizona	Mills College
18	Wellesley College	University of Maryland, Eastern Shore	Agnes Scott College
19	University of Chicago	Univ. of Minnesota, Minneapolis St. Paul	Univ. of North Carolina, Chapel Hill
20	Williams College	University of Idaho	University of California, Berkeley