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Expenditures and Revenues in American Higher Education

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“Expenditures and Revenues in American Higher Education” (DP-27)  
Abstract

This paper analyzes changes in expenditure patterns and revenue sources for the majority of private and public non-profit colleges and universities from the years 1986-87 to 1988-89 and 1990-91. It compares the changes between public and private schools by Carnegie types, uncovering similar trends in all types. Net spending per student is greater at private institutions than at public ones -- and is increasing relative to them, largely because of declines in state and local appropriations to public schools. Their reaction to cuts in appropriations has been to cut spending with future benefits (ie, library, plant maintenance) rather than spending on current students. Financial aid is increasing dramatically at all types of institutions, but net tuition still increases, posing concerns about what is happening to the access to higher education of those less able to afford it.

Over the past decade or so there has been a great deal of speculation concerning the course of revenues and expenditures in U.S. higher education. However, presumably due to data limitations, there have been few attempts to analyze the recent history of higher education finances at the national level. One exception is our paper (with Scott W. Blasdell) "Trends in Revenues and Expenditures in U.S. Higher Education: Where Does the Money Come From? Where Does it Go?," which appeared as Chapter 2 in our book (with Gordon C. Winston), Paying the Piper: Productivity, Incentives, and Financing in U.S. Higher Education, (The University of Michigan Press, 1993). This paper updates and expands our earlier work.

Section I describes the data set employed in our analysis. Section II presents a detailed look at the recent behavior of higher education institutions in the nation. Section III looks explicitly at changes over time in the composition of expenditures and revenues. Section IV concludes.

## I. The Data

Our data set consists of financial and other information on individual colleges and universities during the period from 1986-87 to 1990-91. These data are available on CD-ROM through the CASPAR system put out by the National Science Foundation. The data come originally from the Integrated Postsecondary Education Data System (IPEDS) administered by the U.S. Department of Education and describe the basic financial accounts of almost all public and private non-profit post-secondary institutions in the

United States, along with figures on full- and part-time enrollment for each institution. The enrollment data allow us to construct estimates of full-time-equivalent enrollment (FTE), which we use to express all of the financial data on a per FTE enrollment basis. We have these data for the majority of private non-profit and public colleges and universities and concentrate here on three academic years -- 1986-87 (referred to as 1987 in the tables and text that follow), 1988-89 (referred to as 1989), and 1990-91 (referred to as 1991).<sup>1</sup> All of our numbers are adjusted for inflation and are presented in 1990-91 dollars. The data set has been constructed as a panel, so that only those schools with data for all three observation years are included.

In the tables summarizing these data, we disaggregate institutions by Carnegie Classification. Table 1 presents separate data on expenditures for public and private Research I and II plus Doctorate-Granting I and II universities (referred to below as research universities), while Table 2 presents analogous data on revenues. Tables 3 and 4 examine public and private Comprehensive Universities and Colleges I and II (referred to below as comprehensive universities). Tables 5 and 6 consider public and private Liberal Arts Colleges I and II, while Tables 7

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<sup>1</sup> In order for an institution to be included in our data set, we need information on the full set of expenditure and revenue categories for each of the three years. Both the number of schools and their enrollment are presented in each of the tables that follow. There are a total of 1,197 public institutions in our data set, with a total enrollment in 1991 of 6.4 million students. There are 709 private institutions, enrolling 1.7 million students.

and 8 examine public two-year colleges.<sup>2</sup>

All of our expenditure and revenue categories are explained in detail in the glossary attached to this paper. Briefly, expenditure categories include educational and general spending per FTE student net of student aid (NETSPEND)<sup>3</sup>, which is then broken down into spending on instruction and self-supported research (INSTRUCT), externally supported research (RESEARCH), public service (PUBSERV), academic support other than library expenditures (ACADSUPP), library expenditures (LIBRARY), student services (STUDSERV), institutional support (INSTSUPP), and operations and maintenance (OPMNEXP). Restricted scholarships (SCLREST), unrestricted scholarships (SCLUNRES), and plant additions (PLANTADD) complete the list of expenditures. Revenue categories include per FTE values of gross tuition and fees (TANDF), federal grants and contracts (FEDGRCN), state and local grants and contracts (SLGRCN), state and local appropriations (SLAPP), endowment earnings (ENDOWINC)<sup>4</sup>, total scholarship aid from institutional funds (TOTSCH), tuition and fee revenue net of institutional aid (NETT&FREV), federal financial aid (FEDFNAID),

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<sup>2</sup>The small sample sizes led us to ignore private two-year colleges along with the professional and specialized groups.

<sup>3</sup>We have netted out student aid spending because part of this spending is directly "passed through" from federal student aid, and for most institutions the rest is best seen as foregone institutional revenue, rather than as spending on educational programs.

<sup>4</sup>As explained in the glossary, endowment income is computed by taking 5% of the market value of the endowment at the beginning of the academic year less total debt.

state and local financial aid (SLFNAID), and the net price paid by the average student (NETSTPR).

A number of these variables are related to each other. Net spending equals the sum of all expenditure variables except for scholarships and plant additions. On the revenue side, gross tuition and fees less scholarship aid from institutional funds equals net tuition and fee revenues, while net tuition and fee revenues less federal and state and local financial aid equals the net student price.

## II. Expenditures and Revenues: Levels and Trends

Table 1 shows that net spending per student at private research universities in 1991 was substantially higher than in the public sector (\$23,635 versus \$14,441, in 1990-91 academic year dollars) and that the difference grew over time (net spending increased at an annual real growth rate of 2.64% at the private schools versus 1.35% in the public sector). While some public sector expenditures are "off-budget" and are therefore not included in these financial data, expenditures per student are strikingly different between sectors and this difference has been growing rapidly, particularly since 1989.<sup>5</sup> In fact, as will be apparent for each of the public sector groups examined below,

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<sup>5</sup>An example of an off-budget item is that, in some states, certain parts of employee benefits (such as pension plans) appear on state government budgets rather than institutional budgets. The underestimation of public expenditures may be especially important in analyzing capital spending, where significant plant additions may be off-budget.

there has been little or no real growth after 1989 in net spending per student for students attending public institutions. Private schools, on the other hand, have continued to increase net spending at a fairly rapid real rate.

Expenditure growth has varied considerably across spending categories in public higher education. Table 1 shows that academic support has increased modestly (with an annual real growth rate of .41% from 1989 to 1991) while operations and maintenance spending decreased at an annual real rate of -1.59%. Institutional support and library expenditures also suffered considerable real declines per student (-1.20% and -1.04% annually). The differences in growth rates between the private and public institutions imply that the already substantial disparities in levels of particular expenditures have tended to increase further over time. For example, in 1991 library expenditures per FTE student at private research universities amounted to \$844 versus \$477 at their public counterparts, with these expenditures increasing during the 1989-1991 period at an annual real rate of 1.21% at the private schools while falling at a -1.04% rate in the public sector. The area of greatest growth for private research universities is in financial aid (note especially the 8.49% annual real rate in unrestricted scholarships from 1989 to 1991), a subject that will be returned to shortly in the discussion of revenues.

While all but the last expenditure category relates to the operating budget, the final category, plant additions, relates to

the capital budget. In our earlier paper, we showed that private institutions were engaged in a massive building boom in the 1980s. In 1979, additions to plant and equipment were almost identical in the public and private sectors, but by 1989 plant additions were twice as large on a per student basis at private universities as at public universities. However, our latest data show a very different behavior by the late 1980s, with a per student capital expenditure of \$3,534 at private research universities falling to \$2,295 in 1991. It appears that private-public differences in these expenditures are evaporating, returning toward the parity of the late 1970s.

Table 2 shows that, while gross tuition and fees (sometimes called the "sticker price") are far greater at private research universities than at their public counterparts (\$12,207 versus \$3,084), annual real growth rates over the entire period were quite similar (3.11% in the private sector versus 2.98% in the public sector). Moving down the list of revenue categories, the reason for stringency in public sector expenditures quickly becomes apparent -- state and local appropriations failed to keep pace with inflation over the entire period, with a striking annual real decline (-2.22% per year) between 1989 and 1991. State and local appropriations are by far the major revenue source for public institutions (\$7,123 accounts for almost half of the \$14,441 net spending figure mentioned above) and the substantial real decline is the obvious cause of the cutbacks in key expenditure categories.

Universities in both sectors have increased institutional financial aid at staggering real rates -- TOTSCH increased at an annual rate of 10.12% in the public sector and 7.80% in the private sector over the entire period.<sup>6</sup> The breakdown for the most recent period, 1989 to 1991, indicates that the rate of increase in private expenditures on financial aid is accelerating (8.44% annual growth versus 7.80% for the longer period). The rapid increase in financial aid means that net tuition and fee revenues have increased less rapidly than gross tuition. The largest differences occur between 1989 and 1991 for the private universities, with sticker prices increasing at an annual real rate of about 3% and tuition revenues increasing by less than 2%. Finally, sluggishness in federal and state and local financial aid from 1987 to 1991 means that the net price facing students has increased at a rate less than the sticker price but more than net tuition revenues going to schools.

Tables 3 and 4 provide expenditure and revenue data for comprehensive universities. While the private-public difference in net spending per student (\$9,328 versus \$7,135) is much smaller than was the case for research universities, annual growth rates imply substantial widening over time. Of particular note is the 1.69% annual real growth rate during the 1989-1991 period in the private sector compared with the -.70% growth rate in the public sector. The decline in real expenditures at these

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<sup>6</sup> Note, however, the very small base on which changes in institutional aid at public institutions are calculated.

public schools is felt most heavily in the library and operations and maintenance categories (rates of decline of -3.58% and -3.74%) with spending on academic support bucking this trend (the annual growth rate in academic support expenditures was positive 2.16% from 1989 to 1991). Again, there was considerable growth in financial aid at private schools and the difference in plant additions across sectors decreased substantially.

Table 4 shows that growth rates in gross tuition and fees, institutional financial aid, net tuition and fees, and the net price facing students mirrored fairly closely the experience of research universities. Again, substantial increases in financial aid led to the situation where net tuition revenues increased more slowly than sticker prices. Finally, there was a striking decline in state and local appropriations for public comprehensive universities -- with an annual rate of decline of -2.55% from 1987 to 1991 and an even more disturbing decline of -4.75% during the 1989-1991 period. Not only is the decline greater for this group of schools than for public research universities, but state and local appropriations accounted for 63% of net spending at public comprehensive universities (\$4,480 out of \$7,135) compared with 49% in the earlier case.

Tables 5 and 6 present information for liberal arts colleges. Private liberal arts colleges have experienced much more modest real growth in net spending over the 1987-1991 period (.90% per year) than was the case for either private research universities (2.64%) or private comprehensive universities

(1.78%). Again, there was considerable real growth in financial aid and considerable real decline in capital expenditures. On the revenue side, we again see the familiar pattern of financial aid increases wiping out a third or so of the increase in gross tuition in the private sector. Caution is suggested by the relatively small sample size for public liberal arts colleges but the expenditure and revenue data mirror pretty closely the experience of public comprehensive universities, with the exception of the unusually high increase in tuition at public liberal arts colleges after 1989.

Tables 7 and 8 examine our final institutional category, community colleges. These schools have managed to maintain a slight real increase in net spending (0.26% per year from 1989 to 1991), despite a real decline in state and local appropriations (-1.63% per year). One reason for this is that institutional financial aid is so small that increases in gross tuition (2.85% annually) translate almost directly into increases in net tuition revenue (2.75% annually).

### III. Expenditures and Revenues: Changes in Composition

Tables 9 and 10 present the expenditure and revenue data in a different manner. Table 9 shows the share of net spending going to each expenditure category in 1987 and 1991 for each type of institution.

Starting with the 1991 figures, the dominant category for all groups is instruction and self-supported research,

accounting for roughly 40% to 50% of operating expenditures. While academic support, library expenditures, and operations and maintenance account for a fairly consistent percentage of expenditures (5-7%, 3-5% and 8-14%), there is much greater variation across groups for the other expenditure groups. Differences in the role of funded research and public service are to be expected, but there is also a good deal of variation in relative spending on student services and institutional support. Specifically, private schools allocate a greater percentage of operating expenditures to student services and institutional support than do their public counterparts -- 17% total versus 12% for research universities, 30% versus 21% for comprehensive universities, and 36% versus 27% for liberal arts colleges.

Looking at changes over time in expenditure shares, there is a great deal of stability from 1987 to 1991, although it is interesting to note that by the end of the period one expenditure category, operations and maintenance, accounted for a smaller share of operating expenditures for each institutional group.

The figures in table 10 examine the percentage contribution of each of our major revenue sources.<sup>7</sup> In 1991, private schools received most of their revenues from tuition, ranging from 55% at research universities to 85% at comprehensive universities, with liberal arts colleges at 79%. The major funding source in the

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<sup>7</sup>We define total revenues as the sum of our five revenue categories. Unfortunately, our data base has very limited data on total gifts (to the endowment and elsewhere). Again, we use a proxy for endowment income which provides an indication of the amount of money that is availed from the endowment.

public sector is state and local appropriations, which account for 69% of revenues at community colleges, 55% of revenues at research universities, and around 64% at other public colleges and universities. Other significant revenue sources are federal grants and contracts at public and private research universities (accounting for 18% and 27% of revenues), endowment income at private research universities and liberal arts colleges (accounting for 12% and 14% of revenues), and net tuition revenue at public research universities (22% of revenues), public comprehensive universities (27% of revenues), public liberal arts colleges (28% of revenues), and community colleges (21%).

In terms of changes in revenue shares over time, the most striking movement is in the relative contribution from the government as opposed to students at public institutions. For all four public institutional groups, the share of revenues contributed by state and local appropriations has declined while the share of revenues contributed by net tuition revenue has increased. While tuition dependency in the public sector remains much less than among private colleges and universities, the experience during the 1987 to 1991 period suggests that the narrowing trend documented in our earlier work has continued.<sup>8</sup>

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<sup>8</sup> While our earlier work used a different sample of schools as well as some different revenue categories, we found that the contribution of net tuition revenue at public colleges and universities rose by 3 to 4 percentage points from 1979 to 1989.

#### IV. Conclusion

The aim of this paper is to use the latest national data available in addressing two key questions concerning American higher education: Where does the money come from? Where does it go? Recognizing the heterogeneity of institutions of higher education in the United States, we have asked these questions for a variety of institutional types.

On the expenditure side, financial problems have tended to take their toll on certain expenditure categories -- most notably library spending and operations and maintenance -- rather than leading to across the board reductions. Such behavior suggests an intergenerational cost transfer, with increasingly scarce resources being more likely to be spent on current students, faculty and staff (in the form of instructional spending and self-supported research, among other expenditure categories) rather than on future generations. One very clear difference between these findings and our earlier ones is that the deterioration in the financial climate in recent years has put an end to the boom in capital spending that we had previously documented. Again, this is consistent with allocating resources more to the present than to the future.

The reason for financial problems for public institutions is their dismal experience with their principal revenue source, state and local appropriations. Real declines in these appropriations, particularly after 1989, have forced public schools of all types to become more tuition dependent. The

failure of financial aid (federal, state and local, or institutional) to keep pace with the increases in gross tuition means that, from 1989 to 1991, students attending public colleges and universities have had the average real net price they pay increase by between 2% and 10% per year. The worry about this trend is whether needy students are being "held harmless" -- whether increases in public tuition are being targeted on those students who can afford to pay. If not, the progress we have made over the past three decades in terms of access to higher education for low income students is under threat.

The biggest difficulty faced by private colleges and universities relates to institutional financial aid. Real annual growth rates for different groups of private schools have ranged from 7% to 9% from 1987 to 1991, and from 8% to 10% during the 1989-1991 period. A natural temptation would be to increase private gross tuition at rapid rates in recognition of the fact that a substantial portion of gross revenues will be recycled in financial aid. However, an alternative perspective suggests that rapid increases in gross tuition generate increasingly little in terms of actual revenues, making large tuition hikes not worth the political fall-out. What is clear is that a considerable gap has developed between the course of gross tuition changes and net tuition revenues.

The bottom line is that many private and public colleges and universities have been experiencing some difficult times. The causes have differed and, to a certain extent, so have the

responses. Recognizing recent changes in revenues and expenditures allows us to anticipate better the short- and medium-term future of American higher education, and to begin to deal with problems that may arise.

TABLE 1  
 Carnegie=Research I,II; Doctorate-Granting I,II  
 Expenditure Levels in 1990-9 1 Dollars  
 All Dollar Values are per FIE

Expenditure Category	Institutional		Annual % Change			Annual % Change		Annual
	Control	N	1987	1987 to 1989	1989	1989 to 1991	1991	1987 to 1991
ENROLL	Public	123	2,081,530	1.48%	2,143,893	2.08%	2,234,919	1.78%
	Private	66	560,997	1.22%	574,856	0.67%	582,595	0.94%
NETSPEND	Public	123	13,682	2.36%	14,343	0.34%	14,441	1.35%
	Private	66	21,266	2.88%	22,526	2.40%	23,635	2.64%
INSTRUCT	Public	123	5,595	1.08%	5,717	0.01%	5,718	0.55%
	Private	66	8,885	3.98%	9,621	3.36%	10,290	3.67%
RESEARCH	Public	123	2,769	4.87%	3,053	1.97%	3,175	3.42%
	Private	66	4,150	2.70%	4,381	1.24%	4,491	1.97%
PUBSERV	Public	123	1,011	4.11%	1,098	1.94%	1,142	3.03%
	Private	66	774	1.14%	791	4.54%	867	2.84%
ACADSUPP	Public	123	923	3.30%	986	0.41%	994	1.85%
	Private	66	1,197	0.01%	1,197	-0.15%	1,194	-0.07%
LIBRARY	Public	123	462	2.63%	487	-1.04%	477	0.80%
	Private	66	755	4.36%	824	1.21%	844	2.78%
STUDSERV	Public	123	565	3.59%	607	-0.12%	606	1.73%
	Private	66	1,002	2.23%	1,047	1.98%	1,089	2.10%
INSTUPP	Public	123	1,146	1.44%	1,179	-1.20%	1,152	0.12%
	Private	66	2,581	2.25%	2,700	2.52%	2,839	2.38%
OPMNEXP	Public	123	1,211	0.19%	1,216	-1.59%	1,178	-0.70%
	Private	66	1,923	1.08%	1,965	1.42%	2,022	1.25%
SCLREST	Public	123	574	3.58%	617	-0.82%	607	1.38%
	Private	66	1,011	-2.01%	972	1.43%	1,000	-0.29%
SCLUNRES	Public	123	256	10.09%	313	7.04%	361	8.56%
	Private	66	1,386	8.11%	1,630	8.49%	1,931	8.30%
PLANTADD	Public	123	1,634	5.74%	1,833	0.51%	1,852	3.12%
	Private	66	2,953	8.98%	3,534	-21.59%	2,295	-6.31%

Table 2  
 Carnegie=Research I,II; Doctorate-Granting I,II  
 Revenue Levels in 1990-91 Dollars  
 All Dollar Values are per FTE

Revenue Category	Institutional Control		1987	Annual % Change 1987 to		Annual % Change 1989 to		Annual % Change 1987 to	
	N			1989	1989	1991	1991	1991	
ENROLL	Public	123	2,081,530	1.48%	2,143,893	2.08%	2,234,919	1.78%	
	Private	66	<b>560,997</b>	1.22%	574,856	0.67%	582,595	0.94%	
TANDF	Public	123	2,737	4.00%	2,965	1.97%	3,084	2.98%	
	Private	66	10,780	3.19%	11,489	3.03%	12,207	3.11%	
FEDGRCN	Public	123	2,000	4.53%	2,190	2.94%	2,323	3.74%	
	Private	66	4,621	2.39%	4,847	1.70%	5,015	2.04%	
SLGRCN	Public	123	370	2.81%	391	8.93%	468	5.87%	
	Private	66	616	5.79%	692	2.15%	722	3.97%	
SLAPP	Public	123	7,309	0.93%	7,446	-2.22%	7,123	-0.65%	
	Private	66	571	-6.58%	501	-1.96%	481	-4.27%	
ENDOWINC	Public	123	174	0.38%	176	1.15%	180	0.77%	
	Private	66	1,937	-0.07%	1,935	4.68%	2,125	2.31%	
TOTSCH	Public	123	186	13.40%	243	6.85%	279	10.12%	
	Private	66	1,601	7.17%	1,848	8.44%	2,188	7.80%	
NETT&FREV	Public	123	2,551	3.24%	2,722	1.50%	2,805	2.37%	
	Private	66	9,179	2.46%	9,641	1.92%	10,019	2.19%	
FEDFNAID	Public	123	369	2.48%	388	-1.59%	376	0.45%	
	Private	66	383	0.50%	386	0.11%	387	0.30%	
SLFNAID	Public	123	160	7.16%	184	-0.27%	183	3.45%	
	Private	66	132	-16.33%	95	-4.52%	87	-10.43%	
NETSTPR	Public	123	2,022	3.06%	2,149	2.19%	2,246	2.62%	
	Private	66	8,664	2.78%	9,159	2.06%	9,545	2.42%	

TABLE 3  
 Carnegie=Comprehensive Universities and Colleges I,II  
 Expenditure Levels in 1990-91 Dollars  
 All Dollar Values are per FIE

Expenditure Category	Institutional Control		1987	Annual % Change	1989	Annual % Change	1991	Annual % Change
	N	1987		1987 to 1989		1989 to 1991		1987 to 1991
ENROLL	Public	287	153,545.1	2.88%	1,626,365	3.08%	1,729,721	2.98%
	Private	220	553,996	2.25%	579,489	2.36%	607,526	2.31%
NETSPEND	Public	287	7,181	0.38%	7,235	-0.70%	7,135	-0.16%
	Private	220	8,686	1.88%	9,018	1.69%	9,328	1.78%
INSTRUCT	Public	287	3,659	-0.16%	3,647	-0.91%	3,581	-0.53%
	Private	220	3,971	1.19%	4,066	2.54%	4,279	1.87%
RESEARCH	Public	287	224	8.94%	268	2.74%	283	5.84%
	Private	220	196	6.27%	222	2.41%	233	4.34%
PUBSERV	Public	287	226	5.41%	251	3.03%	267	4.22%
	Private	220	136	1.79%	141	1.30%	145	1.54%
ACADSUPP	Public	287	439	-0.12%	438	2.16%	457	1.02%
	Private	220	525	0.23%	527	2.55%	555	1.39%
LIBRARY	Public	287	275	3.35%	294	-3.58%	274	-0.12%
	Private	220	305	7.79%	356	-0.81%	350	3.49%
STUDSERV	Public	287	565	-0.65%	558	0.43%	563	-0.11%
	Private	220	895	3.48%	960	3.50%	1,029	3.49%
INSTSUPP	Public	287	915	1.42%	942	-0.48%	933	0.47%
	Private	220	1,695	2.49%	1,781	0.68%	1,806	1.58%
OPMNEXP	Public	287	879	-2.38%	838	-3.74%	778	-3.06%
	Private	220	963	0.00%	963	-1.74%	930	-0.87%
SCLREST	Public	287	578	4.91%	637	-1.50%	618	1.70%
	Private	220	726	6.27%	823	0.95%	839	3.61%
SCLUNRES	Public	287	120	4.49%	131	5.50%	146	4.99%
	Private	220	811	8.08%	953	9.75%	1,158	8.91%
PLANTADD	Public	287	601	3.25%	641	-0.26%	638	1.49%
	Private	220	1,239	-2.44%	1,180	-19.90%	793	-11.17%

TABLE 4  
 Carnegie=Comprehensive Universities and Colleges I,II  
 Revenue Levels in 1990-91 Dollars  
 All Dollar Values are per FTE

Revenue Category	Institutional Control		1987	Annual % Change 1987 to		1989	Annual % Change 1989 to		1991	Annual % Change 1987 to	
	N			1989	1989		1991	1991			
ENROLL	Public	287	1,535,451	2.88%		1,626,365	3.08%		1,729,721	2.98%	
	Private	220	553,996	2.25%		579,489	2.36%		607,526	2.31%	
TANDF	Public	287	1,836	2.61%		1,935	2.60%		2,038	2.61%	
	Private	220	7,433	3.62%		7,991	3.00%		8,485	3.31%	
FEDGRCN	Public	287	321	2.22%		336	2.93%		356	2.57%	
	Private	220	374	3.09%		398	3.42%		426	3.25%	
SLGRCN	Public	287	179	4.33%		195	1.92%		203	3.12%	
	Private	220	268	10.85%		333	-1.81%		321	4.52%	
SLAPP	Public	287	4,961	-0.35%		4,926	-4.75%		4,480	-2.55%	
	Private	220	127	0.59%		129	-5.98%		114	-2.70%	
ENDOWINC	Public	287	11	-7.58%		10	10.48%		12	1.45%	
	Private	220	373	1.67%		386	3.89%		417	2.78%	
TOTSCH	Public	287	87	8.87%		104	8.58%		124	8.73%	
	Private	220	862	7.55%		1,003	10.31%		1,232	8.93%	
NETT&FREV	Public	287	1,749	2.28%		1,831	2.24%		1,914	2.26%	
	Private	220	6,570	3.08%		6,988	1.85%		7,253	2.47%	
FEDFNAID	Public	287	480	5.36%		534	-2.74%		506	1.31%	
	Private	220	405	5.13%		449	-1.30%		437	1.91%	
SLFNAID	Public	287	96	1.49%		99	1.13%		101	1.31%	
	Private	220	157	13.13%		204	5.43%		227	9.28%	
NETSTPR	Public	287	1,173	1.02%		1,198	4.39%		1,308	2.71%	
	Private	220	6,009	2.65%		6,336	1.95%		6,589	2.30%	

TABLE 5

Camegie=liberal arts

Expenditure Levels in 1990-91 Dollars

All Dollar Values are per FTE

Expenditure Category	Institutional		Annual % Change			Annual % Change		Annual % Change
	Control	N	1987	1987 to 1989	1989	1989 to 1991	1991	1987 to 1991
EN-ROLL	Public	28	33,213	4.86%	36,605	4.65%	40,173	4.76%
	Private	423	408,152	3.63%	438,869	2.37%	460,143	3.00%
NETSPEND	Public	28	8,006	-1.31%	7,799	-0.53%	7,717	-0.92%
	Private	423	10,516	0.56%	10,635	1.24%	10,902	0.90%
INSTRUCT	Public	28	3,524	-1.26%	3,436	-1.16%	3,358	-1.21%
	Private	423	4,220	0.98%	4,304	1.40%	4,426	1.19%
RESEARCH	Public	28	269	-5.62%	240	-4.30%	220	-4.96%
	Private	423	131	2.19%	137	-7.04%	119	-2.43%
PUBSERV	Public	28	135	15.32%	184	-0.88%	181	7.22%
	Private	423	116	-0.96%	113	0.87%	115	-0.05%
ACADSUPP	Public	28	553	-12.66%	430	1.16%	<b>440</b>	-5.75%
	Private	423	543	-0.64%	536	1.93%	<b>557</b>	0.64%
LIBRARY	Public	28	276	16.95%	388	-4.28%	356	6.34%
	Private	423	418	4.56%	457	2.14%	477	3.35%
STUDSERV	Public	28	693	-1.11%	678	1.77%	702	0.33%
	Private	423	1,332	2.01%	1,387	2.53%	1,459	2.27%
INSTSUPP	Public	28	1,330	-0.22%	1,325	2.14%	1,382	0.96%
	Private	423	2,383	-0.68%	2,351	1.33%	2,415	0.33%
OMPMNEXP	Public	28	1,225	-4.52%	1,119	-1.84%	1,079	-3.18%
	Private	423	1,373	-0.87%	1,350	-0.58%	1,334	-0.73%
SCLREST	Public	28	897	0.47%	906	0.65%	917	0.56%
	Private	423	1,204	4.50%	1,317	-0.40%	1,307	2.05%
SCLUNRES	Public	28	166	4.58%	182	5.95%	205	5.27%
	Private	423	1,315	5.14%	1,457	8.41%	1,724	6.78%
PLANTADD	Public	28	837	16.54%	1,165	-8.91%	975	3.82%
	Private	423	1,523	3.99%	1,650	-20.09%	1,104	-8.05%

TABLE 6

Carnegie=liberal arts

Revenue Levels in 1990-91 Dollars

All Dollar Values are per FTE

Revenue Category	Institutional		Annual % Change 1987 to		Annual % Change 1989 to		Annual % Change 1987 to	
	Control	N	1987	1989	1989	1991	1991	1991
ENROLL	Public	28	33,213	4.86%	36,605	4.65%	40,173	4.76%
	Private	423	408,152	3.63%	438,869	2.37%	460,143	3.00%
TANDF	Public	28	2,000	2.89%	2,119	5.42%	2,362	4.16%
	Private	423	8,311	2.58%	8,751	3.25%	9,339	2.91%
FEDGRCN	Public	28	448	-3.44%	419	-7.34%	362	-5.39%
	Private	423	268	1.94%	278	-3.11%	262	-0.59%
SLGRCN	Public	28	252	8.06%	296	-5.13%	267	1.47%
	Private	423	243	11.97%	309	2.06%	322	7.01%
SLAPP	Public	28	5,167	-0.02%	5,164	-2.82%	4,881	-1.42%
	Private	423	66	-14.39%	50	-0.04%	50	-7.22%
ENDOWING	Public	28	28	-0.80%	28	-1.70%	27	-1.25%
	Private	423	1,237	-2.38%	1,180	4.12%	1,281	0.87%
TOTSCH	Public	28	129	11.98%	163	11.32%	205	11.65%
	Private	423	1,506	7.08%	1,735	7.88%	2,031	7.48%
NETT&FREV	Public	28	1,871	2.20%	1,956	4.90%	2,157	3.55%
	Private	423	6,805	1.52%	7,016	2.03%	7,307	1.78%
FEDFNAID	Public	28	703	1.62%	726	-3.50%	677	-0.94%
	Private	423	593	2.50%	624	-4.84%	566	-1.17%
SLFNAID	Public	28	164	-3.19%	154	1.83%	160	-0.68%
	Private	423	214	6.09%	242	4.91%	267	5.50%
NETSTPR	Public	28	1,004	3.43%	1,075	10.25%	1,320	6.84%
	Private	423	5,998	1.26%	6,150	2.57%	6,474	1.91%

TABLE 7  
 Carnegie=2 -Year  
 Expenditure Levels in 1990-9 1 Dollars  
 All Dollar Values are per FTE

Expenditure Category	Institutional Control	N	1987	Annual	1989	Annual	1991	Annual
				% Change 1987 to 1989		% Change 1989 to 1991		% Change 1987 to 1991
ENROLL	Public	759	2,129,326	2.67%	2,246,229	3.57%	2,412,267	3.12%
NETSPEND	Public	759	5,236	1.03%	5,345	0.26%	5,372	0.64%
INSTRUCT	Public	759	2,692	0.87%	2,739	0.35%	2,758	0.61%
RESEARCH	Public	759	6	5.93%	7	4.58%	8	5.26%
PUBSERV	Public	759	119	7.31%	238	-2.58%	131	2.37%
ACADSUPP	Public	759	341	-0.92%	335	0.60%	339	-0.16%
LIBRARY	Public	759	122	7.23%	141	-1.77%	136	2.73%
STUDSERV	Public	759	502	1.42%	517	2.31%	541	1.86%
INSTUPP	Public	759	829	1.49%	854	0.52%	863	1.00%
OPMNEXP	Public	759	624	-0.86%	613	-1.45%	596	-1.16%
SCLREST	Public	759	419	6.69%	479	2.69%	505	4.69%
SCLUNRES	Public	759	31	-5.71%	28	0.57%	28	-2.57%
PLANTADD	Public	759	422	-2.14%	404	-0.16%	403	-1.15%

TABLE 8  
 Carnegie=2-Year  
 Revenue Levels in 1990-9 1 Dollars  
 All Dollar Values are per FTE

Revenue Category	Institutional Control	N	1987	Annual	1989	Annual	1991	Annual
				% Change 1987 to 1989		% Change 1989 to 1991		% Change 1987 to 1991
ENROLL	Public	759	2,129,326	0	2,246,229	0	2,412,267	0
TANDF	Public	759	1,039	3.13%	1,106	2.85%	1,171	2.99%
FEDGRCN	Public	759	195	0.61%	197	-1.70%	190	-0.54%
SLGRCN	Public	759	258	11.26%	323	-3.46%	302	3.90%
SLAPP	Public	759	3,769	0.29%	3,790	-1.63%	3,669	-0.67%
ENDOWINC	Public	759	5	-30.85%	3	35.30%	6	2.22%
TOTSCH	Public	759	25	7.44%	29	6.51%	33	6.97%
NETT&FREV	Public	759	1,013	3.02%	1,077	2.75%	1,137	2.88%
FEDFNAID	Public	759	357	6.87%	410	2.74%	433	4.81%
SLFNAID	Public	759	52	1.99%	54	-1.36%	52	0.32%
NETSTPR	Public	759	605	0.69%	613	3.10%	652	1.89%

**Table 9**

Composition of Expenditures: 1987 and 1991

	1987		Research/ Doctorate		Comprehensive		Liberal Arts		Two Year
	Public	Private	Public	Private	Public	Private	Public	Public	
	Instruction and Self-Supported Research	40.89%	41.78%	50.95%	45.71%	44.01%	40.13%	51.40%	
Funded Research	20.24%	19.52%	3.12%	2.26%	3.36%	1.25%	0.12%		
Public Service	7.39%	3.64%	3.14%	1.57%	1.69%	1.10%	2.27%		
Academic Support	6.74%	5.63%	6.11%	6.04%	6.91%	5.16%	6.52%		
Library	3.38%	3.55%	3.83%	3.51%	3.45%	3.97%	2.34%		
Student Services	4.13%	4.71%	7.87%	10.31%	8.66%	12.67%	9.59%		
Institutional Support	8.37%	12.14%	12.75%	19.51%	16.62%	22.67%	15.84%		
Operations and Maintenance	8.85%	9.04%	12.24%	11.09%	15.30%	13.06%	11.92%		

  

	1991		Research/ Doctorate		Comprehensive		Liberal Arts		Two Year
	Public	Private	Public	Private	Public	Private	Public		
	Instruction and Self-Supported Research	39.60%	43.54%	50.20%	45.87%	43.51%	40.59%	51.34%	
Funded Research	21.99%	19.00%	3.96%	2.50%	2.86%	1.09%	0.14%		
Public Service	7.91%	3.67%	3.74%	1.55%	2.34%	1.06%	2.44%		
Academic Support	6.88%	5.05%	6.41%	5.95%	5.70%	5.11%	6.31%		
Library	3.30%	3.57%	3.84%	3.75%	4.61%	4.38%	2.54%		
Student Services	4.20%	4.61%	7.89%	11.04%	9.10%	13.38%	10.07%		
Institutional Support	7.97%	12.01%	13.07%	19.36%	17.91%	22.15%	16.07%		
Operations and Maintenance	8.15%	8.55%	10.90%	9.98%	13.98%	12.24%	11.09%		

TABLE 10  
Composition of Revenues: 1987 and 1991

1987	Research/ Doctorate		Comprehensive		Liberal Arts		Two Year
	Public	Private	Public	Private	Public	Private	Public
	Federal Grants and Contracts	16.12%	27.30%	4.44%	4.85%	5.77%	3.11%
State and Local Grants and Contracts	2.98%	3.64%	2.48%	3.48%	3.25%	2.82%	4.92%
State and Local Appropriations	58.92%	3.37%	68.70%	1.65%	66.52%	0.77%	71.92%
Endowments	1.41%	11.45%	0.15%	4.83%	0.37%	14.35%	0.10%
Net Tuition Revenue	20.57%	54.23%	24.22%	85.19%	24.09%	78.95%	19.34%

  

1991	Research/ Doctorate		Comprehensive		Liberal Arts		Two Year
	Public	Private	Public	Private	Public	Private	Public
	Federal Grants and Contracts	18.01%	27.31%	5.11%	5.00%	4.70%	2.84%
State and Local Grants and Contracts	3.63%	3.93%	2.91%	3.77%	3.48%	3.49%	5.68%
State and Local Appropriations	55.22%	2.62%	64.32%	1.34%	63.44%	0.54%	69.17%
Endowments	1.39%	11.57%	0.17%	4.89%	0.35%	13.89%	0.11%
Net Tuition Revenue	21.75%	54.56%	27.49%	85.02%	28.03%	79.24%	21.45%

## Glossary of Expenditure and Revenue Categories

### Expenditures

NETSPEND: net spending per FTE student -- We compute this number as the average per FTE student value of educational and general spending net of student aid. We have netted out student aid spending because part of this spending is directly "passed through" from federal student aid, and for most schools the rest is best seen as foregone institutional revenue, rather than as spending on educational programs.

INSTRUCT: instruction and self-supported research per FTE student -- Expenditures of the colleges, schools, departments, and other instructional divisions of the institution and expenditures for departmental research and public service which are not separately budgeted are included. Expenditures for academic administration where the primary function is administration (e.g. academic deans) are excluded.

RESEARCH: research per FTE student -- All funds expended for activities specifically organized to produce research outcomes and commissioned by an agency either external to the institution or separately budgeted by an organizational unit within the institution are included.

PUBSERV: public service per FTE student -- This category includes all funds budgeted specifically for public service and expended for activities established primarily to provide noninstructional services beneficial to groups external to the institution. Examples are seminars and projects provided to particular sectors of the community, community services, and cooperative extension projects.

ACADSUPP: academic support per FTE student -- Expenditures for the support services that are an integral part of the institution's primary missions of instruction, research, or public service are included. Expenditures for museums, galleries, audio/visual services, academic computing support, ancillary support, academic administration, personnel development, and course and curriculum development are examples. We have taken out library expenditures and treated it as a separate category.

LIBRARY: library spending per FTE student -- Expenditures on library.

STUDSERV: student services per FTE student -- This category includes funds expended for admissions, registrar activities, and activities whose primary purpose is to contribute to students' emotional and physical well-being and to their intellectual, cultural, and social development outside the context of the formal instruction program. Examples are career guidance, counseling, financial aid administration, student health services

(except when operated as a self-supporting auxiliary enterprise), and the administrative allowance for Pell grants.

INSTSUPP: institutional support per FTE student -- Included are expenditures for the day-to-day operational support of the institution, excluding expenditures for physical plant operations. Examples are general administrative services, executive direction and planning, legal and fiscal operations, and community relations.

OPMNEXP: operations and maintenance per FTE student -- Includes all expenditures for operations established to provide service and maintenance related to campus grounds and facilities used for educational and general purposes. Expenditures made from institutional plant funds accounts are excluded.

SCLREST: scholarships from restricted funds per FTE student -- Included are scholarships and fellowships awarded from restricted funds, including Pell grants.

SCLUNRES: scholarships from unrestricted funds per FTE student -- Included are scholarships and fellowships awarded from unrestricted funds. This category, as well as the one above, applies only to moneys given in the form of outright grants and trainee stipends to individuals enrolled in formal coursework, either for credit or not. Aid to students in the form of tuition or fee remissions are included (except those remissions granted because of faculty or staff status). College work study program expenses are reported where the student served, not in either of the scholarship categories.

PLANTADD: plant additions per FTE student -- We compute this number by summing over the three categories of physical plant additions during the year - land, buildings, and equipment. Additions during the year are additions to plant made through purchase, by gift-in-kind from donors, and from other additions. Construction in progress and plant expenditures which represent capital fund investments in real estate are excluded.

#### Revenues

TANDF: gross tuition and fee revenue per FTE student -- The convention followed by academic institutions is to calculate this amount by assuming that every student pays the sticker or list price - hence this variable is gross of financial aid. Charges for room, board, and other services rendered by auxiliary enterprises are excluded.

FEDGRCN: federal grants and contracts per FTE student less Pell and SEOG amounts -- Examples are research projects, training programs, and similar activities for which amounts are received or expenditures are reimbursable under the terms of a government grant or contract.

SLGRCN: state and local grants and contracts per FTE student.

SLAPP: state and local appropriations per FTE student -- Includes all amounts received or made available to an institution through acts of a legislative body, except grants of contracts. These funds are for meeting current operating expenses and not for specific projects or programs.

ENDOWINC: we compute this by taking 5% of the market value of the endowment at the beginning of the academic year less total debt. The 5% figure is a proxy for the average availment **rate** used by colleges and universities. While the IPEDS form asks directly for endowment income, respondents are asked to reply based on the particular availment formula they use. For some, their answer will be based on total return but for others their answer will be based only on yield. We therefore use our 5% method as the best proxy we can find for endowment income.

TOTSCH: total scholarship aid from institutional funds per FTE student.

NETT&FREV: net tuition and fee revenue per FTE student -- We subtract the total amount of scholarship aid from institutional funds (TOTSCH) from gross tuition and fees (TANDF) to calculate this net revenue figure.

FEDFNAID: the sum of Pell and SEOG grants disbursed per FTE student -- Administrative expenses are included for SEOG.

SLFNAID: state and local financial aid per FTE student

NETSTPR: the net student price -- calculated by taking gross tuition and subtracting institutional aid, federal aid, and state and local aid.