DOCUMENT RESUME

ED 272 070 HE 019 493

AUTHOR Brinkman, Paul
TITLE Trends in Institutional Financing. Practitioner Report.
INSTITUTION National Center for Higher Education Management Systems, Boulder, Colo.
SPONS AGENCY National Inst. of Education (ED), Washington, DC.
PUB DATE Nov 82
NOTE 43p.
PUB TYPE Statistical Data (110) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Capital Outlay (for Fixed Assets); Educational Finance; *Federal Aid; *Financial Support; *Higher Education; Income; Operating Expenses; Parent Financial Contribution; Private Colleges; *Private Financial Support; *Resource Allocation; School Taxes; *State Aid; State Colleges; Student Costs; Student Financial Aid

ABSTRACT

Data concerning higher education revenues during fiscal years 1973-1980 were collected. Four institutional perspectives were examined: market shares, sources of revenue, fund balances, and unit revenues. Six consumer-investor dimensions were also covered: the shares from federal, state, and local governments; private donor's share; the school's share; the student and family's share; and the total amount of resources going to higher education by source. Data were collected on: current fund revenues received by various types of institutions; educational and general (E&G) revenues; largest single source of current fund revenue and E&G revenue by type of institution; end-of-year fund group balances (current, loan, endowment, annuity, and plant) for public, private, and proprietary institutions; student-related revenues per weighted full-time-equivalent student by type of institution; federal aid to students by type of program; federal expenditures to institutions by purpose; federal tax expenditures; state and local government aid for current operations, tax expenditures, and capital costs; estimated voluntary support by source and purpose; institutional costs for operations and capital costs; and student-family direct and indirect costs. The data are accompanied by narrative explanations. (SW)

Trends in Institutional Financing

This report is an overview of the results of a study on higher education financing conducted at NCHEMS. The study is the third in a series of efforts to develop financing indicators that can provide useful background information for administrators and analysts in higher education. The initial studies dealt with the costs of attending college (Brown, Kahl, and Kriz 1981) and student financing of those costs (Leslie 1982). The focus of the study being reported on here is broader, as it encompasses both an institutional perspective on higher-education financing and the perspective of those who consume and invest in higher education. Its aim is to provide basic data about the revenues flowing into colleges and universities during the middle and late 1970s--how much, to whom, and from whom.

This overview will follow the structure of the main report, wherein a series of specific themes are treated within the two general perspectives mentioned above--that of the institutions and the consumer-investor. The first four segments reflect the following institutional perspectives: market shares, dependence (sources of revenue), fund balances, and unit revenues. The last six segments reflect the following consumer-investor dimensions: the federal government's share, the state and local government's share, voluntary support (the private donor's share), the institutional share, the student and family share, and the total amount of resources going to higher education.

Each segment consists of brief remarks on the concepts involved, highlights of the findings, and a few tables. Before presenting this material, a few general comments on data issues are in order.

Throughout the segments on the institutional perspective, the Higher Education General Information Surveys (HEGIS) are the primary data source. HEGIS data,

especially those on finances, have come under considerable scrutiny. While the possibility of error in the values for any given institution must be acknowledged, most analysts would agree that in the aggregate, as they are used in this report, the data can be used with some confidence.

No one data source was used throughout the second half of the analysis, as the individual segments required different sets of data. In addition, some of the data required did not exist at all, and thus had to be imputed or otherwise estimated order to achieve a complete account of higher education financing. Various estimates developed elsewhere were also used. In general, the data presented in the consumer-investor section are unlikely to be as accurate as the data used for the institutional perspective.

In segments dealing directly with institutions, the universe is clearly delineated--it consists of all institutions in the HEGIS universe. Essentially, that means all accredited colleges and universities. In the remaining segments, the universe is less clearly defined. Much of the material is derived from governmental accounts wherein the term "higher education" appears to have the meaning usually reserved for the term "postsecondary"; in other words, the universe of relevant educational experiences is broader than that related to just degree-granting institutions.

The data in this report typically cover the period from fiscal year 1973 through fiscal year 1980. Important in the choice of timeframe was the need to have data that were compatible from the beginning to the end of the period analyzed, and that were still relevant for current issues and circumstances. The interested reader may find it worthwhile to juxtapose data from earlier periods (as in Harris 1972 or O'Neill 1973) to the material contained herein. If so, a word of warning is appropriate. "Cross-walking" between eras must be done carefully if it is not to result in

misleading conclusions. The financing of higher education in this country is an evolving process--not only with respect to its magnitude and to those who bear the burden, but also with respect to the ways in which we conceptualize and record the process. It is this latter dimension that requires considerable attention when developing an extended historical analysis.

I. The Institutional Perspective

Formal higher education as we know it today depends on a periodic flow of financial resources to the institutions--colleges and universities--that make it happen. Those institutions are a diverse group. There are considerable differences in the amount of revenue, the sources of revenue, the amount of assets, and so on, available to various types or classes of institutions. By presenting finance data disaggregated by institutional type, we gain some insight into our nation's preferences for various forms of higher education. The NCHEMS institutional classification system is used in what follows: it delineates institutional classes primarily on the basis of degree offerings (level and breadth), augmented by special attention to medical education and separately budgeted research expenditures.

Market Shares. Several ways of considering the amount of revenue flowing into higher education institutions are presented here. Table 1 shows the current fund revenues received by various institutional classes. Table 2 presents educational and general (E&G) revenues from the perspective of another sort of slice through the universe of institutions. In table 3, institutional revenues are looked at in the context of other economic indicators.

Some highlights of changes during the period from FY73 to FY80 are as follows:

- current fund revenues
  - increased at public institutions by 107 percent in current dollars, 24 percent in constant dollars (HEPI)
  - increased at private institutions by 100 percent in current dollars, 20 percent in constant dollars (HEPI)
  - totaled $58 billion for all institutions in 1980, or 2.24 percent of the GNP compared to 2.17 percent in 1973

- market shares, current fund revenues
  - remained fairly constant between sectors:
    - two-thirds went to public institutions
    - one-third went to private institutions
    - proprietary institutions increased their share, but still received only three-tenths of one percent of total current fund revenues in 1980

- market shares, educational and general revenues (FY75 to FY80)
  - changed more among the various types of public institutions than among the various types of private institutions
  - declined slightly for women's and church-affiliated colleges, but increased slightly for predominantly black institutions
  - increased for large institutions (FTE enrollment of 8000 or more).

Table 1 Current Fund Revenues, by NCHEMS Institutional Class, FY1973-80 (Millions of Dollars)

Institutional Class	1973a	1975	1977	1979	1980	Market Share FY1980
Public	$18,926	$24,211	$29,452	$34,761	$39,075	66.4%
Research-Medical (R-M)		6,439	7,548	8,932	9,933	16.9
Research-Nonmedical (R-NM)		1,449	1,910	2,126	2,521	4.3
Doctoral-Medical (D-M)		1,193	1,761	2,059	2,481	4.2
Doctoral-Nonmedical (D-NM)		2,359	2,827	3,394	3,675	6.2
Comprehensive (C)		5,061	5,986	7,165	8,014	13.6
Baccalaureate (B)		862	1,010	1,207	1,342	7.3
Two-Year Acad. & Comp. (TYAC)		3,643	4,319	4,944	5,541	9.4
Two-Year Occupational (TYO)		919	1,142	1,416	1,539	2.6
Health Professional (HP)		1,547	2,225	2,701	3,093	5.3
Other Specialized (OS)		738	725	816	934	1.6
Private	9,833	11,681	14,175	17,261	19,634	33.3%
Research-Medical		3,386	4,026	4,926	5,645	9.6
Research-Nonmedical		790	1,020	1,159	1,380	2.3
Doctoral-Medical		697	887	1,107	1,270	2.2
Doctoral-Nonmedical		823	965	1,154	1,290	2.2
Comprehensive		1,651	2,026	2,461	2,800	4.8
Baccalaureate		2,619	3,130	3,736	4,234	7.2
Two-Year Acad. & Comp.		186	219	272	314	0.5
Two-Year Occupational		101	134	149	160	0.3
Health Professional		642	748	997	1,192	2.0
Other Specialized		785	1,018	1,301	1,348	2.3
Proprietary	33	49	86	162	183	0.3%
All Institutions	$28,792	$35,941	$43,716	$52,185	$58,892	100.0%

Source: HEGIS

a In some instances in FY73, data were provided to NCES at a system level rather than at an individual campus level. Under such circumstances, disaggregation by institutional class is not workable.

Table 2 Changes in Educational and General Revenues and Market Shares, Selected Institutional Types, FY1975 to FY1980

Type of Institution	FY75-FY80 Change in Current $s	FY75-FY80 Change in Constant $s	Market Share FY75	Market Share FY80	Change in Market Share %
Women's	44.1	0.5	1.16	1.02	-.14
Predominantly Black	67.0	16.2	3.19	3.24	+.05
Church Affiliated	60.7	12.1	8.61	8.44	-.17
Number of FTE Students					
Less than 500	15.0%	-19.8%	3.89%	2.73%	-1.16
500-1999	58.9	10.8	16.53	16.03	-.50
2000-7999	60.3	11.8	30.41	29.74	-.67
8000-17999	68.6	17.5	27.43	28.23	+.80
18000 or more	74.9	21.9	21.85	23.31	+1.46

Table 3 Institutional Revenues in Perspective

	1973	1975	1977	1979	1980
Current Fund Revenues as a Percent of GNP	2.17	2.32	2.28	2.16	2.24
Educational & General Revenues at Private Institutions as a Percent of Gross Private Domestic Investment	3.2	4.1	3.2	3.0	3.6
Educational & General Revenues at Public Institutions as a Percent of Total Government Purchases of Goods and Services	8.6	8.4	8.8	8.8	8.7
Educational and General Revenues as a Percent of the Total Cost of Higher Education	44.2	42.1	44.0	44.4	43.5

Dependence. Sources of institutional revenues could be considered from numerous perspectives. Here the focus is primarily on one issue, the dependence of various classes of institutions on a largest single source of revenue. Most observers would probably agree that, other things being equal, some sort of balance or diversity is preferable. There has been particular concern about the extent to which some private institutions have become dependent on revenue from tuition. Interestingly, as shown in table 4, the extent of dependence (on tuition) for comprehensive and baccalaureate private institutions, while relatively high, actually decreased slightly from FY75 to FY80 with respect to E&G revenues. The dependence index, a composite of dependence rates and market shares of institutional classes across sectors, shows (table 4.1) that dependence is on a largest single source of revenue highest, and increasing faster, in the public sector.

Other highlights from the period FY75 to FY80 regarding changes in shares of revenue from various sources (not tabled) are as follows:

- at public institutions
  - changes appear to be material--state appropriations went up, federal and local appropriations went down, sales and services of educational activities and hospitals went up
- at private institutions
  - changes were very modest--biggest percentage gainer was "other sources" (mostly short-term investments) going from 3.1 percent to 3.9 percent of current fund revenues.

Table 4 Largest Single ... ces of Current Fund Revenue and Educational and General Revenue, by Type of Institution, FY75 and FY80

Institutional Class	Percent of Total Current Fund Revenue from Largest Single Source FY75	FY80	Percent of Educational & General Revenue from Largest Single Source FY75	FY80
Public				
R-M	35.4	37.1%	46.8%	48.0%
R-NM	43.2	42.2	50.8	50.0
D-M	41.6	40.4	51.6	52.3
D-NM	47.1	48.3	58.1	52.7
C	52.6	54.8	61.7	64.6
B	50.0	50.8	58.9	59.7
TYAC	41.5	50.0	44.5	53.1
TYO	45.6	48.4	49.1	51.8
HP	38.7	39.8	55.6	59.1
OS	41.6	54.0	46.0	57.2
Private				
R-M	20.8	21.3	29.5	30.6
R-NM	41.3	41.1	29.2	29.9
D-M	28.7	27.9	41.3	42.8
D-NM	49.8	50.9	61.1	62.0
C	55.5	54.6	68.8	67.5
B	48.6	49.2	62.6	62.1
TYAC	42.3	45.2	55.6	57.7
TYO	64.2	67.0	78.3	77.5
HP	49.1	43.4	28.8	24.0
OS	46.4	50.2	54.3	58.6

Source: HEGIS

Table 4.1 Educational and General Revenue Single-Source Dependence Index* for Public and Private Institutions, FY75 and FY80

	FY75	FY80	Percent Change FY75 to FY80
Public Institutions	521.5	545.8	4.7%
Private Institutions	494.7	498.0	.7

* The index expresses an average for a sector, across ten classes of institutions, of dependence upon the largest single source of revenue weighted by each institutional type's market share of the revenue in question.

Fund Balances. The accumulation of wealth in our colleges and universities is difficult to assess, due in part to the nature of the fund accounting system used by the institutions as well as to what is not included in the national reporting schedules for financial data (HEGIS). Fund balances, however, do shed light on some dimensions of the asset structure of institutions, including differential growth rates by type of asset (table 5). Because monies can readily be moved (transferred) from one fund to another, changes in a particular fund balance (especially the Current Fund) cannot always be taken at face value. In order to get a better sense of how well institutions were doing in meeting the financial requirements for current operations, an index was constructed taking into account only additions, deductions, and mandatory transfers to and from the Current Fund. As shown in Table 6, it does appear that, on average, institutions in both sectors were better off in FY80 than in FY75.

When interpreting the current dollar growth rates shown in table 5, note that it takes a fund balance increase of about 44 percent just to keep up with inflation as measured by the HEPI (using 1975 as the base year). From that perspective, the Endowment Fund growth is not encouraging for either of the major sectors. When interpreting Plant Fund values, note that the fund balance includes, among other things, the book value of land, buildings, and equipment; unfortunately, the data do not allow us to see the results of the interplay between the depreciation and the appreciation of those assets.

Over the period from 1975 to 1980, the composite balance of the five major fund groups

- stayed ahead of inflation in the public sector
- fell just behind inflation in the private sector, and declined noticeably in relation to Current Fund expenditures.

Table 5 End-of-Year Fund Group Balances, by Sector, FY1975-80 (Millions of Dollars)

Fund Groups	1975	1977	1979	1980	% Change FY1975-80 Current $s
Public Institutions, All Five Funds	$44,461	$52,818	$62,384	$67,808	53%
Current	2,504	3,327	4,347	5,255	110
Loan	1,274	1,697	1,952	2,053	61
Endowment	2,620	2,660	3,371	3,641	39
Annuity	25	35	52	36	44
Plant	38,088	45,099	52,662	56,823	49
Private Institutions, All Five Funds	30,780	34,752	39,388	43,611	42
Current	1,365	1,878	2,430	2,726	100
Loan	1,365	1,624	1,851	1,985	45
Endowment	10,685	11,947	13,413	15,315	43
Annuity	467	569	681	843	81
Plant	16,898	18,734	21,013	22,742	35
Proprietary Institutions, All Five Funds	43	74	219	223	419
Current	7	24	49	63	800
Loan	0	<0.5	<0.5	0	0
Endowment	<0.5	<0.5	12	12	3900
Annuity	0	0	<0.5	0	0
Plant	36	50	158	147	308
All Institutions, All Five Funds	75,284	87,644	101,991	111,642	48
Current	3,876	5,229	6,826	8,044	108
Loan	2,639	3,321	3,803	4,038	53
Endowment	13,305	14,607	16,796	18,969	43
Annuity	492	604	733	879	79
Plant	$55,022	$63,883	$73,833	$79,712	45%

Table 6 Current Operations Index*, by Sector, FY1975 and FY1980

	1975	1980
Public Institutions	.098	.974
Private Institutions	1.473	4.377

* Annual index value generated as follows: for each institutional type, deductions and mandatory transfers are subtracted from additions to the Current Fund to obtain the surplus (deficit); the surplus (deficit) is divided by Current Fund expenditures to obtain the operating ratio; the operating ratio is multiplied by the market share (Current Fund revenues divided by total Current Fund revenues for the sector); the products in a sector are summed to get the index value for the sector. The higher the index value the better in terms of institutional ability to meet the financial requirements for current operations. All data are taken or derived from HEGIS.

Table 7 Fund Group Balances in Perspective

	1975	1977	1979	1980
Sum of five fund group balances, for all institutions, as a percent of GNP	4.86%	4.57%	4.22%	4.24%
Ratio of the sum of five fund group balances to Current Fund expenditures at public institutions	1.88	1.83	1.84	1.78
Ratio of the sum of five fund group balances to Current Fund expenditures at private institutions	2.66	2.49	2.33	2.28
Sum of Endowment and Current Fund balances, for public institutions, as a percent of Current Fund expenditures	21.6%	20.8%	22.7%	23.4%
Sum of Endowment and Current Fund balances, for private institutions, as a percent of Current Fund expenditures	104.2%	99.0%	93.5%	94.5%

Unit Revenues. Revenues for day-to-day operations in higher education are to a considerable extent a function of the number of students enrolled. In many instances, the relationship is quite close; for example, at certain types of public institutions in states with formula funding, or private institutions that are highly dependent upon tuition revenues. In other cases, especially at institutions that receive large amounts of funding for research or public service or whose yield on endowment provides a substantial amount of money for current operations, the relationship between total revenues and total enrollment is less straightforward.

The revenue trends displayed in table 1 above suggest modest growth in the amount of financial resources available to higher education, even when expressed in constant dollar terms. In one sense, that growth is of interest in its own right, as an indicator of a change in the magnitude of higher education--regardless of the attendant service level. On the other hand, higher education's financial resources also need to be measured against the level of services provided in order to more fully address questions of funding adequacy--at least in a relative sense (over time and between classes of institutions).

The relationship of interest for present purposes is that between revenues for student-related, educational purposes and number of students. A reasonable approximation of those revenues can be obtained by: first, confining the analysis to educational and general (E&G) revenues (eliminating revenues related to hospitals, auxiliary enterprises, and independent operations); second, subtracting from E&G revenues the expenditure totals for separately budgeted research and public service (these expenditures are a good proxy for revenues because restricted funds for the purpose of conducting research or providing public services are counted as revenues only if actually expended within the fiscal year in question); and, third, subtracting from E&G revenues a prorated share of administrative and academic services

expenditures devoted to research and public service. The remaining E&G revenues can be regarded as being available for student-related educational purposes. Students are counted using a weighted FTE calculation designed to take into account differences in the resources that are required by students at different levels of instruction (see table 8 for details).

From FY75 through FY80, student-related revenues on a weighted FTE basis changed as follows:

- overall, revenues at public institutions remained just over four-fifths of revenues at private institutions
- the difference between unit revenues, comparing public to private, was greatest for research universities; it was smallest for non-medical universities and comprehensive institutions
- unit revenues increased about the same for all publics (1.4%) as for all privates (2.5%) in constant dollars (HEPI)
- the biggest percentage gainers in unit revenues were universities with medical programs and institutions specializing in the health professions
- the smallest percentage gainers in unit revenues were two-year institutions and public baccalaureate institutions
- among classes of public institutions (excluding specialized schools) the ratio of highest to lowest revenue per weighted FTE student was 1.52 in 1980, compared to 1.34 in 1975
- among classes of private institutions (excluding specialized schools), the ratio of highest to lowest revenue per student was 2.92 in 1980 compared to 2.30 in 1975.

Table 8 Student-Related Revenues per Weighted FTE Student*, By Institutional Class, FY1975-80

Institutional Class	1975	1977	1979	1980	% Change FY75-80 Constant $s
Public	$2,190	$2,451	$2,940	$3,185	1.4%
R-M	2,514	2,845	3,498	3,800	5.4
R-NM	1,866	2,243	2,592	2,802	4.7
D-M	2,311	2,622	3,426	3,763	13.5
D-NM	1,995	2,356	2,850	3,052	6.6
C	1,913	2,179	2,592	2,856	4.1
B	2,198	2,345	2,772	2,934	-7.0
TYAC	1,873	1,972	2,299	2,467	-8.2
TYO	2,261	2,377	2,878	2,973	-8.4
HP	9,524	11,494	12,649	14,596	6.8
OS	4,902	5,109	5,835	6,343	-9.8
Private	2,655	3,039	3,539	3,906	2.5
R-M	3,694	4,347	5,268	5,740	8.3
R-NM	4,852	5,443	6,410	7,408	6.4
D-M	3,083	3,865	4.750	5,216	17.9
D-NM	2,146	2,638	2,874	3,210	4.3
C	2,112	2,470	2,850	3,160	4.3
B	2,628	3,008	3,420	3,811	1.1
TYAC	2,336	2,483	2,885	3,203	-4.4
TYO	2,296	2,151	2,191	2,541	-22.9
HP	6,165	6,422	8,381	9,807	10.9
OS	2,068	2,132	2,613	2,669	-10.0
Proprietary	1,531	1,992	2,744	2,286	4.1
All Institutions	$2,309	$2,601	$3,095	$3,373	1.8%

* Following Bowen (1980) the following weighting scheme was used to convert simple FTE enrollments to weighted FTE enrollments: freshman and sophomores, 1.0; juniors and seniors 1.5; first-year graduate students 2.1; advanced professional students 2.5; and advanced graduate students 3.0. These weights are said by Bowen to reflect "the relative average costs of educating various categories of students." (p. 115).

HEPI used for constant dollars.

II. The Consumer-Investor Perspective

The primary issues are these: who provides what share of the total resources entering higher education? and what is the total amount of those resources, i.e., what does higher education cost?

Responding to either question requires a decision as to the range of costs to include in the analysis. In this report, all economic costs have been included: direct costs, in the sense of actual outlays or expenditures; and indirect costs including depreciation of physical assets, implicit rent (the opportunity cost of using assets for higher education rather than for some other endeavor), so-called tax expenditures (government subsidies brought about through tax deductions, exemptions, and exclusions), and foregone earnings (the opportunity cost of attending school instead of earning a wage).

Data for this portion of the analysis came from a variety of sources, chief among which are: federal budget documents, especially Special Analysis, Budget of the United States Government, 1975-1982; Governmental Finances, 1973-1980 on state and local government, along with state appropriations data compiled by M. M. Chambers; Voluntary Support of Education, 1973-1980 on private donors; HEGIS on (net) institutional contributions; previous NCHEMS studies on college-going costs (Brown, Kahl, and Kriz 1981) and student financing (Leslie 1982) and, for indirect cost rates, Schultz (1960), Crary and Leslie (1978), and Cohn (1979).

The Federal Share. The federal government's role in higher education has traditionally been that of promoting special purposes, whereas the states were left, by constitutional authority, with the basic and broad responsibilities for education as a whole. Thus, federal expenditures for higher education have taken the form of support for landgrant institutions, veterans, basic research, black institutions,

manpower training progra s, needy students, and so on. Perhaps closest to general support are some of the so-called tax expenditures, or tax write-offs, granted by the federal government on behalf of higher education.

Funds from the federal government are channeled to higher education in basically three ways: as payments to institutions, assistance to students, and as tax expenditures. The flow of federal funds to students in higher education can be thought of as being of two kinds. Some of the funds (for example, Pell grants) are a type of direct support to students, while other funds (such as veteran's benefits) can be considered as indirect support to students (Frances 1980). The payments, in the latter case, are indirect in that their primary purpose is not educational. The bulk of federal funds that take the form of payments to institutions are in support of research activities. Federal money also supports other activities such as programs for disadvantaged students, vocational education, and developing institutions; and a few special institutions receive large, general purpose appropriations.

The problem of accounting for the federal share on a consistent basis from year to year is formidable--expenditures are spread across an estimated 400 postsecondary programs (Gladieux 1981). On occasion, the Office of Management and Budget (OMB) has made that task considerably easier. For 1973, 1975, and 1977, a special analysis of expenditures for education was prepared by OMB. These analyses were subsequently used by the author as the basis for gathering expenditures from the budget data for 1979 and 1980. On the whole, the data shown in tables 7 and 8 for 1979 and 1980 are likely to be less accurate with respect to some of the details than in the earlier years. Areas where this is especially true are health and defense-related expenditures, and various kinds of "other" expenditures. The totals generally are reported and thus should be reasonably accurate--for present purposes--but proportions to be allocated to student assistance as opposed to payments to institutions involved some guesswork.

The basic structure for presenting and organizing the data in table 7 was taken from Finn (1978). The expenditures shown are actual outlays, rather than appropriations or obligations.

During the period from FY73 to FY80, the following changes occurred in federal expenditures for higher education.

- The total amount of expenditures
  - increased 91 percent in current dollars, from $9.2 billion to $17.6 billion (an 8 percent increase in constant dollars, using a combination of indices--see table 10)
  - declined 8.7 percent in constant dollars on a per student basis
  - declined as a share of total federal non-defense expenditures from 5.1 percent to 4.0 percent
  - declined as a share of the total cost of higher education from 17.9 percent to 17.0 percent

- Expenditures for student assistance
  - direct assistance (for example, Pell grants) increased from 11 percent to 29 percent as a proportion of the federal share
  - indirect assistance (for example, veteran's benefits) decreased from 34 percent to 22 percent as a proportion of the federal share
  - direct and indirect assistance combined increased 21 percent in constant dollars

- payments to institutions for research and development
  - increased 24 percent in constant dollars.

Table 9 Detailed Federal Expenditures for Higher Education

Assistance to Students	1973	1975	1977	1979	1980
Office/Department of Education					
Basic Educational Opportunity Grants	$ --	$342	$1387	$1936	$2415
"Campus-based" aid and State Student Incentive Grants	829	844	865	1091	1268
Guaranteed Loans	206	335	344	662	1408
Other	0	110	88	80	75
Social Security - Dependents and Supervisors' Education Benefits	638	840	1181	1385	1565
Health Training and Other HEW	283	320	215	252	190
Veterans' Education Benefits	2016	3479	2802	2120	1813
Defense Department	113	532	330	336	346
Other	110	111	109	105	100
Subtotal	4195	6913	7321	7967	9180
Payments to Institutions					
Research and Development	1888	2228	2702	3430	3915
Programs for Disadvantaged Students and Developing Institutions	85	230	130	226	250
Vocational Education	160	137	166	185	207
Other OE/DOE Programs	159	7	118	80	75
Special Institutions	79	89	99	126	193
Health Resources	554	758	769	571	529
Defense Department	289	71	326	336	346
Other	279	93	111	106	100
Subtotal	3493	3613	4421	5060	5615
Tax Expenditures					
Exclusion of Scholarships and Fellowships		200	245	310	355
Parental Personal Exemptions for Students 19 and Over		670	750	935	1030
Deductions of Individual Contributions		440	525	680	785
Deductions of Corporate Contributions		205	235	325	305
Exclusion of Veterans' Education Benefits		255	260	190	190
Exclusion of Social Security Student Benefits		50	73	99	123
Exclusion of Interest on State and Local Student Loan Bonds		-	-	-	45
Subtotal	1522	1820	2088	2539	2833
Total	$9210	$12346	$13830	$15566	$17628

Table 10 Federal Expenditures by Major Objectives, FY1973-80, Constant Dollars* and Percents

	1973	1975	1977	1979	1980
Student Assistance					
Direct	$1035 (11%)	$1342 (13%)	$1968 (19%)	$2307 (24%)	$2847 (29%)
Indirect	3160 (34)	4346 (42)	3401 (33)	2570 (26)	2212 (22)
Subtotal	4195 (45)	5688 (55)	5369 (52)	4877 (50)	5059 (51)
Payments to Institutions					
R&D	1888 (21)	1918 (18)	2048 (20)	2261 (23)	2349 (24)
Other	1605 (17)	1292 (12)	1303 (13)	1074 (11)	1020 (10)
Subtotal	3493 (38)	3110 (30)	3351 (33)	3335 (34)	3369 (34)
Tax Expenditures	1522 (17)	1498 (15)	1531 (15)	1554 (16)	1561 (16)
Total	9210 (100)	10296 (100)	10251 (100)	9766 (100)	9989 (100)

Percentage totals may not equal 100 because of rounding.

* To convert current to constant 1973 dollars, the HEPI was used for payments to institutions and the CPI was used for student assistance and tax expenditures.

Table 11 Federal Expenditures for Higher Education in Perspective

Federal Expenditures for Higher Education as Percent of:	1973	1975	1977	1979	1980
GNP	.70%	.80%	.72%	.65%	.67%
Total Federal Expenditures	3.6	3.8	3.5	3.2	3.0
Total Federal Purchases of Goods and Services	9.0	10.1	9.7	9.3	8.9
Total Federal Non-Defense Expenditures	5.1	5.0	4.6	4.2	4.0

The State and Local Share. The states, with modest help from local governments, have traditionally been responsible for the basic educational services that are to be supported with public monies. Thus, it was the states that had the primary responsibility for funding the enormous increase in the size of public higher education in this century. State and local support for higher education is predominantly a matter of payments to institutions for both current operations and capital outlays. Explicit student aid, that is, monies earmarked for students, increased dramatically during the 1970s but still constituted a rather small portion of all state and local support by the end of the decade. As in the case of the federal government, state and local governments also provide financial support in forms other than direct outlays. State income taxes, and state and local sales and property taxes typically contain provisions that reduce the cost of higher education to the institutions, private donors, and students and their families. In addition to tax expenditures, other forms of support include the implicit rent on, and the depreciation of, the physical assets belonging to public higher education. Of the cost of higher education born by state and local governments, the proportion due to these non-outlay forms of support is nearly twice that on the federal side.

The important data problems for this segment are a function of the various estimates that need to be made in order to capture the full economic cost of higher education born by state and local governments. Tax subsidies, implicit rents, and depreciation all involve rate estimates that are subject to considerable error. Furthermore, there is some controversy about which, if any, tax expenditures to include. The approach taken here follows that of Schultz (1960) and Cohn (1979) in including the subsidies built into income, sales, and property taxes. On another controversial matter, some analysts argue that outlays for physical assets should not be considered as part of annual costs, thereby limiting capital costs to depreciation and implicit rent. For the present study, however, it seemed more appropriate to

follow Blitz (1962), Machlup (1962), and Cohn (1979), in including capital outlays as an annual cost along with depreciation and implicit rent, a procedure that is more consistent with the desire to include all opportunity costs

From FY1973 to FY1980, the following changes occurred in the financial support given to higher education by state and local governments:

- For current operations
  - state appropriations increased 124 percent in current dollars, 35 percent in constant dollars
  - local net expenditures increased 113 percent in current dollars, 28 percent in constant dollars; equalling a little more than one-fifth of state appropriations across the period
  - state appropriations plus local net expenditures increased slightly as a percent of all state and local purchases of goods and services--to just under 7 percent of the total
- The state and local share as a percent of the total cost of higher education increased slightly from 37.4 percent to 38.0 percent
- Tax expenditures increased in value from $2.2 billion to $4.3 billion, a 19 percent increase in constant dollars; property tax exemptions accounted for about three-fourths of total tax expenditures
- Among capital costs
  - expenditures for capital outlays remained rather flat, increasing only 9 percent in current dollars
  - implicit rent jumped dramatically--54 percent in constant dollars--in accord with sharply higher interest rates
- For all costs born by state and local governments the proportion going to current operations increased from 54 to 59 percent; the capital-cost portion

declined from 35 to 30 percent; the tax expenditures portion stayed at 11 percent.

Table 12 State and Local Government's Financial Support for Higher Education (Millions of Dollars), FY1973-80

Current Operations	1973	1975	1977	1979	1980	% Change FY1973-80 Constant $s*
State Appropriations	$8510	$11250	$13900	$16980	$19080	23.5%
Local Net Expenditures	1960	2700	3450	3760	4170	17.2
Subtotal	10470	13950	17350	20740	23250	22.4
Tax Expenditures						
State Income Tax	240	290	350	400	490	12.5
Sales Tax	300	370	440	510	570	4.7
Property Tax	1640	1900	2450	2860	3280	10.2
Subtotal	2180	2560	3240	3770	4340	9.7
Capital Costs						
Implicit Rent	2660	4790	4470	5520	6830	48.7
Depreciation	1150	1380	1640	1890	2030	2.2
Capital Outlays	2730	2820	2860	2780	2970	-37.0
Subtotal	6540	8990	8970	10190	11830	4.7
Total	$19190	$25500	$29560	$34700	$39420	18.3%

* CPI used for current operations and tax expenditures; Boeckh construction index for capital costs.

Table 13 State and Local Financial Support for Higher Education in Perspective

	1973	1975	1977	1979	1980
State and Local Financial Support for Higher Education as a Percent of GNP*	1.4%	1.6%	1.5%	1.4%	1.5%
State and Local Capital Outlays for Higher Education as a Percent of all State and Local General Expenditures** for Capital Outlays	8.6	7.1	7.4	6.2	5.6
State Appropriations plus Local Net Expenditures on Higher Education as a Percent of State and Local Purchases of Goods and Services	6.2	6.4	6.9	6.8	6.8
State Appropriations and Local Net Expenditures on Higher Education as a Percent of Total Current Fund Expenditures by Colleges and Universities	37.2	39.5	40.5	40.6	40.6
State and Local Share as a Percent of the Total Cost of Higher Education	37.4	38.4	38.7	38.6	38.0

* GNP adjusted upward by the amount of implicit rent and depreciation.

** Excluding capital outlays by local utilities.

Voluntary Support. From its inception, U.S. higher education has depended to some extent on voluntary contributions. The enormous growth during this century of publically supported higher education brought with it a diminished role for voluntary support--at least with respect to higher education as a whole. Nonetheless, voluntary support remains an essential ingredient of the funding picture for certain types of institutions. Furthermore, when the financial or the political scene at the state or federal level becomes less favorable, public institutions as well as private institutions turn increasingly to voluntary contributions--to maintain quality if not for survival itself.

Federal and state governments have encouraged voluntary support to higher education institutions. By allowing income tax deductions for individual and corporate contributions to colleges and universities, both levels of government have become partners in the voluntary support activity. Based on the estimates used herein, it appears that the government contributed about one-third of the total amount of voluntary support received by the nation's colleges and universities from FY73 to FY80. In other developments during that period, as shown in tables 13 through 15, voluntary support for higher education

- rose from $2.24 billion to $3.8 billion, an increase of 70 percent in current dollars, but only about 2 percent in constant dollars
- grew faster for current operations than for capital purposes
- typically covered about 5 percent of E&G expenditures (all institutions)

- among the donors

- alumni and foundations contributed the largest amounts; together, they contributed almost one-half of the total in FY80
- contributions from business corporations grew the fastest--by a wide margin.

Table 14 Estimated Voluntary Support* by Source and Purpose
(Millions of Dollars)

	1973	1975	1977	1979	1980	% Change 1973-80	% Change 1973-80 Constant $s
Total Voluntary Support	$2240	$2160	$2670	$3230	$3800	+ 70%	+ 1.8%
Sources							
Alumni	536	486	638	785	910	+ 70	+ 1.9
Nonalumni Individuals	600	516	646	736	847	+ 41	-15.3
Foundations	524	497	558	701	903	+ 72	+ 3.4
Business Corporations	320	357	446	556	696	+118	+30.5
Religious Denominations	99	112	136	161	155	+ 57	- 6.1
Other	161	192	246	291	289	+ 80	+ 7.7
Purposes							
Unrestricted	760	695	865	1018	1251	+ 65	- 1.2
Physical Plant	413	335	430	465	599	+ 45	-13.0
Research	292	324	398	508	577	+ 98	+18.6
Student Aid	322	287	342	409	492	+ 53	- 8.3
Faculty Compensation	114	136	166	193	226	+ 98	+18.9
Other	339	382	469	637	655	+ 93	+15.9
Current Operations	1230	1370	1620	2010	2250	+ 83	+ 9.8
Capital Purposes	1010	799	1050	1220	1550	+ 54	- 7.9

* Includes government share; that is, the figures shown do not reflect the actual cost to the donors, but rather what the institutions record as revenues from the donors.

Source: Council for Financial Aid to Education, Voluntary Support for Education, 1973-1980, except for 1973 data on purposes (unrestricted through other) which are the author's estimates; HEPI used for constant dollars.

Table 15 Voluntary Support, Shares (Millions of Dollars)

	1973	1975	1977	1979	1980
Total Voluntary Support	$2240 (100%)	$2160 (100%)	$2670 (100%)	$3230 (100%)	$3800 (100%)
Donor Share	1470 (66)	1400 (65)	1775 (66)	2050 (63)	2500 (66)
Federal Share	660 (29)	645 (30)	760 (28)	1005 (31)	1090 (29)
State Share	110 (5)	115 (5)	135 (5)	175 (5)	210 (5)

Table 16 Voluntary Support for Higher Education in Perspective

Voluntary Support as a Percent of:	1973	1975	1977	1979	1980
GNP	.17%	.14%	.14%	.13%	.13%
Total Educational and General Expenditures	5.5	5.0	4.9	5.2	5.1
Total Voluntary Giving	9.6	8.0	7.4	7.5	8.0
Disposable Personal Income	.16	.13	.14	.12	.12
Donor Share of Voluntary Support as a Percent of:					
Total Annual Cost of Higher Education	2.9	2.1	2.3	2.3	2.4

Institutional Share. Institutions of higher education typically have some financial resources of their own to devote to current operations; that is, resources beyond those made available in a given year by governments, students, and voluntary support. For present purposes, the revenues from the following institutional sources are summed to yield the values for the institutional share: earnings (excluding capital gains or losses) on endowment, sales and services of educational activities (those activities that are incidental to the primary functions of instruction, research, and public service, such as university presses and testing services), and "other sources" such as the sale of computer time and interest income and gains (net of losses) from short-term investments of unrestricted funds.

Both public and private institutions contribute in the above sense to the revenue needed for current operations. Private institutions contribute to the overall funding of higher education in other ways as well: they use up physical capital (in the sense of depreciation); they devote physical capital to higher education instead of to some other endeavor (the opportunity cost recorded as implicit rent); and they construct or purchase new physical capital to devote to higher education. Estimates of these capital-related costs are shown in Table 17. Similar costs are incurred by public institutions, but their capital-related costs have already been accounted for as part of the share attributable to state and local governments (as owners).

From FY73 to FY80, the institutional contribution to the funding of higher education

- rose 105 percent in current dollars, 23 percent in constant dollars
- constituted about 8 to 9 percent of the total cost of higher education

- the portion of the institutional share attributable to current operations

- constituted about 5 to 6 percent of E&G expenditures at public institutions, compared to about 14 to 15 percent at private institutions.

Table 17 Institutional Share (Millions of Dollars), FY 1973-80

	1973	1975	1977	1979	1980	% Change 1973-80 Current $s	% Change 1973-80 Constant $s*
Current Operations							
Public	$890	$950	$1080	$1545	$1890	112%	27%
Private	1075	1155	1370	1815	2175	102	21
Subtotal	1965	2105	2450	3360	4065	107	24
Capital Costs (Private Institutions only)							
Depreciation	550	630	720	810	870	58	5
Implicit Rent	1400	2390	2130	2560	3170	126	36
Capital Outlays	480	830	760	610	1100	95	17
Subtotal	2430	3850	3610	3980	5140	104	22
TOTAL	4395	5955	6060	7340	9205	105	23

Table 18 Institutional Share in Perspective

Institutional Share as a Percent of:	1973	1975	1977	1979	1980
GNP*	.33%	.38%	.32%	.30%	.35%
Total Cost of Higher Education	8.6	9.0	7.9	8.2	8.9
Current Operations Portion of Institutional Share as a Percent of:					
E&G Expenditures-- Public Institutions	5.9	4.9	4.7	5.6	6.1
E&G Expenditures-- Private Institutions	14.6	13.7	13.5	14.8	15.7
Total Institutional Share	41.6	33.8	38.3	43.6	42.0

* GNP adjusted upward by the amount of implicit rent and depreciation.

The Student-Family Share. Historically, public policy in regard to (public) higher education financing has been based upon the assumption that government would pay most of the costs of instruction and students would donate primarily their own time and pay their own higher education-related living expenses. (In privately controlled institutions, the government role has, of course, been much smaller.) This shared responsibility has been rooted in the general notion that both society and the individual benefit from higher education and that this cost allocation is in rough accordance with the share of benefits realized by each. Although changes in the historic policy have been witnessed during the past decade with the shifting of government support from institutions to targeted students, the fundamental understanding remains. Government still pays the major share of public instructional costs, while providing substantial amounts of aid to students in both sectors, and students for the most part still contribute their time and, with family support, pay most of their own living expenses and a portion of the cost of instruction.

Thus, students contribute to higher education funding in several ways. Most notably, they forego earnings while investing in their own human capital. Second, they pay tuition and fees that help to offset costs of instruction. Third, they purchase books and supplies. Fourth, they pay for room and board and for transportation and other such expenses that can be assigned to higher education. In a strict accounting sense, only those living expenses that are in addition to normal living expenses can be assigned to higher education. The remainder would be incurred regardless of the individual's selection of work, homemaking, military service, idleness, etc. In the tables below, only expenses for tuition, fees, books, and supplies are included, because it could not be established that living expenses were different, on average, between students and comparable non-students.

Direct costs for all students were estimated as follows. Total (assessed) tuition revenues for all institutions were obtained from HEGIS. Expenditures for books and supplies were calculated by multiplying the average expenditures for a full-time student by the total number of full-time equivalent students. Total assessed tuition and fees added to total expenditures on books and supplies yields total direct costs. To obtain net direct costs, the total amount of assistance to students and their families was subtracted from total direct costs. The amount of assistance was determined by combining student-reported data with government budget data on assistance programs and tax subsidies.

Indirect costs, or foregone earnings, for undergraduates were calculated following an approach developed by Crary and Leslie (1978). The National Longitudinal Study of the High School Class of 1972 provided the necessary data on comparable individuals who did or did not opt for collegiate enrollment. Foregone earnings of graduate students were estimated by taking a multiple of undergraduate foregone earnings, based on the difference between the after-tax earnings of high school and college graduates.

When interpreting the data shown below, note that both direct and indirect costs are estimated conservatively. The concept of direct costs employed here is restrictive, the concept of financial assistance is broad, and the procedure used to estimate foregone earnings yields results that are lower than those estimated by Schultz (1960), Becker (1964), and others.

The period 1973-1980 witnessed the following in regard to student and family costs of higher education.

- The total net costs to students and their families

- Increased 105 percent in current dollars, from $17 billion to $35 billion, while student FTEs were rising 18.3. percent
- Increased 13 percent in constant dollars (CPI)
- constituted one-third of total higher education costs

- The total net direct cost to students and their families

- remained just a small fraction of one percent of personal disposable income

- Average total net costs for full-time undergraduate students (not tabled)

- Increased 68 percent in current dollars from $2600 to $4380 per year
- decreased 7 percent in constant dollars (CPI)

- Average total net costs for full-time graduate students (not tabled)

- Increased 83 percent in current dollars, from $3890 to $7120 per year
- Increased just one percent in constant dollars (CPI).

Table 19 Student-Family Share, FY1973-80 (Millions of Dollars)

	1973	1975	1977	1979	1980	% Change FY 1973-80 Current $s	% Change FY 1973-80 Constant $s*
Net Direct Costs	$2,140	$1,260	$1,880	$2,350	$3,260	52%	- 16%
Indirect Costs	14,940	20,010	23,225	27,870	31,690	112	17
Total	17,080	21,270	25,105	30,220	34,950	105%	13%

* CPI used for constant dollars.

Table 20 Student-Family Share in Perspective

Student-Family Total Net Cost as a Percent of:	1973	1975	1977	1979	1980
GNP*	1.3%	1.4%	1.3%	1.2%	1.3%
Gross Private Domestic Investment	7.4	10.3	7.8	7.1	8.7
Total Cost of Higher Education	33.3	32.0	32.9	33.6	33.7
Student-Family Total Net Direct Costs as a Percent of:					
Disposable Personal Income	.23	.11	.14	.14	.18
Educational and General Expenditures at Colleges and Universities	9.5	4.5	5.6	5.9	7.3

* GNP adjusted upward by amount of foregone earnings.

Total Cost of Higher Education. In this concluding segment, total net contributions to the financial support of higher education are summarized. The data are meant to provide background information for a perennial, and fundamental, policy issue in higher education finance--who should pay what share of the costs? Whatever the answer to that value-laden question might be, it is apparent from the data shown in tables 21 and 22 that nothing much changed during the period from FY73 to FY80. The most noticeable trend is a gradual decline in the federal share after 1975, this despite large increases in funding for certain types of highly visible student aid programs. Otherwise, the predominent features of the cost distribution remained about the same: state and local governments carried the heaviest share, nearly two-fifths of the total, while students and their families contributed about one-third, and the federal government less than a fifth, of the total. The percentage change data in table 23 suggests somewhat more variability in relative performance over the period.

Total costs can be disaggregated in another way. Table 24 shows the distribution between direct and indirect costs, and several subcategories of each. The cost of operations remained at just over 45 percent of total costs; the next largest type of cost was foregone earnings which remained around 30 percent of total costs. The gap between direct and indirect costs declined a few percentage points, but direct costs still constituted just over one-half of total costs at the end of the period.

Adding up the reported contributions made by the various consumers and investors is one way of estimating the total costs of higher education. A more customary approach (for example, Cohn 1977) is to add estimated indirect costs to institutional expenditures plus any direct costs not included in the institutional accounts. The two procedures are compared in table 25. The estimated totals differ by about one-half of one percent annually.

Table 26 displays the total costs of higher education in the context of standard economic indicators. As a percent of GNP, the resources devoted to higher education popped up a few tenths of a percent in FY75--perhaps as an artifact of the recession--but remained at just under 4 percent in the other years.

Overall, the data in this concluding segment suggest that the status quo was pretty well maintained over the period analyzed. It appears that the distribution of costs among those who support higher education did not change appreciably, and that higher education as a whole continued to receive about the same share of national resources. The record against inflation is more ambiguous. As table 28 shows, much depends on how the adjustment is made. Measured by the HEPI, total support for higher education in constant 1973 dollars rose more than 21 percent. Measured by the CPI on a per FTE-student basis, total support was down by about 6 percent. Perhaps the most appropriate measure is to use the HEPI on a per FTE-student basis, in which case total support just does keep ahead of inflation--by 2 percent or so. Perhaps that statistic sums it up best; 1973 to 1980 was a time when, in the aggregate anyway, higher education held its own--an achievement that may look better and better as we move through the 1980s.

Table 21 Total Cost of Higher Education, by Source, FY1973-80 (Millions of Dollars)

	1973	1975	1977	1979	1980
Federal Government	$ 9,210	$12,350	$13,830	$15,570	$17,630
State and Local Government	19,190	25,500	29,560	34,700	39,420
Voluntary Support	1,470	1,400	1,775	2,050	2,500
Higher Education Institutions	4,395	5,955	6,060	7,340	9,205
Students and Family	17,080	21,270	25,105	30,220	34,950
Total	51,345	66,475	76,330	89,880	103,705

Table 22 Total Cost of Higher Education, by Source, FY1973-80 (Percentage Shares)

	1973	1975	1977	1979	1980
Federal Government	17.9%	18.6%	18.1%	17.3%	17.0%
State and Local Government	37.4	38.4	38.7	38.6	38.0
Voluntary Support	2.9	2.1	2.3	2.3	2.4
Higher Education Institutions	8.6	9.0	7.9	8.2	8.9
Students and Family	33.3	32.0	32.9	33.6	33.7
	100%	100%	100%	100%	100%

Table 23 Total Cost of Higher Education, by Source, Percent Change FY1973 to FY1980, Current and Constant Dollars

	% Change Current $s	% Change Constant $s (CPI)	% Change Constant $s (HEPI)	% Change Constant $s Per FTE Student (CPI)	% Change Constant $s Per FTE Student (HEPI)
Federal Govt.	91%	5.5%	14.9%	-10.9%	- 2.9%
State & Local Government	105	13.2	23.3	- 4.3	4.2
Voluntary Support	70	-6.3	2.0	-20.8	-13.8
Higher Education Institutions	109	15.4	25.7	- 2.5	6.2
Students and Family	105	12.7	22.8	- 4.7	3.7
Total	102%	11.3%	21.2%	- 5.9%	2.4%

Table 24 Total Cost of Higher Education, by Type of Cost, FY1973-80 (Percentage Shares)

	1973	1975	1977	1979	1980
Direct Costs					
Operations	46.7%	44.5%	46.1%	45.8%	45.5%
Capital	8.3	7.0	6.8	6.2	6.6
Subtotal	55.0	51.5	52.9	52.1	52.1
Indirect Costs					
Tax Expenditures*	4.7	4.6	4.9	4.9	4.9
Depreciation	3.3	3.0	3.1	3.0	2.8
Implicit Rent	7.9	10.8	8.6	9.0	9.6
Foregone Earnings	29.1	30.1	30.4	31.0	30.6
Subtotal	45.0	48.5	47.1	47.9	47.9
Total Costs	100%	100%	100%	100%	100%

* Tax exclusions only; parental personal exemptions and deductions for corporate and individual contributions have been included under direct costs.

Table 25 Alternative Approaches to Estimating the Total Cost of Higher Education

	1973	1975	1977	1979	1980
A. Primarily Based on Consumer-Investor Accounts					
Operations	$23,960	$29,605	$35,225	$41,195	$47,235
Indirect Costs	23,120	32,225	35,945	43,085	49,630
Subtotal	47,080	61,830	71,170	84,280	96,865
Capital	4,265	4,645	5,160	5,600	6,840
Total	51,345	66,475	76,330	89,880	103,705
B. Mix of Consumer-Investor and Institutional Accounts					
Operations					
E&G Expenditures	$22,574	$27,785	$33,417	$40,152	$44,876
Books & Supplies	1,114	1,276	1,443	1,626	1,871
Subtotal	23,688	29,061	34,860	41,778	46,747
Indirect Costs	23,120	32,225	35,945	43,085	49,630
Subtotal	46,808	61,286	70,805	84,863	96,377
Capital	4,265	4,645	5,160	5,600	6,840
Total	51,071	65,931	75,965	90,463	103,217

Table 26 Total Cost of Higher Education* in Perspective

Total Cost of Higher Education as a Percent of:	1973	1975	1977	1979	1980
GNP**	3.8%	4.2%	3.9%	3.7%	3.9%
Personal Consumption Expenditures	6.3	6.8	6.3	6.0	6.2
Government Purchases of Goods and Services	19.0	19.6	19.2	18.9	19.3
Gross Private Domestic Investment	22.3	32.3	23.6	21.2	25.8

* Using method A, table 25.

** GNP adjusted for implicit rent, depreciation, and foregone earnings.

References

Becker, Gary S. Human Capital. New York: National Bureau of Economic Research, 1964.

Blitz, R. C. "The Nation's Education Outlay." In Economics of Education, edited by Selma J. Mushkin. Washington, D.C.: U.S. Office of Education, 1962.

Bowen, Howard R. The Costs of Higher Education. San Francisco: Jossey-Bass, 1980.

Brown, Maryann K., Stuart Kahl, and Kaye Kriz. Higher Education Indicators: Tuition, Room, and Board. Boulder: NCHEMS, 1982.

Cohn, Elchanan. The Economics of Education. Cambridge, Mass.: Ballinger, 1979.

———. "The Costs of Formal Education in the United States, 1950-1975." Journal of Education Finance, 3 (Summer 1977):70-81.

Council for Financial Aid to Education. Voluntary Support of Education 1972-73 [annually through 19[illegible]-80]. New York: Council for Financial Aid to Education.

Crary, Lowell J., and Leslie, Larry L. "The Private Costs of Postsecondary Education." Journal of Education Finance, 4 (Summer 1978):14-28.

Executive Office of the President. Special Analysis, Budget of the United States Government, Fiscal Year 1975 [annually through 1982]. Washington, D.C.: U.S. Government Printing Office.

Finn, Chester E., Jr. Scholars, Dollars, and Bureaucrats. Washington, D.C.: The Brookings Institution, 1978.

Frances, Carol. "Influence of Government Programs." In A Handbook of Planning and Institutional Research by Paul Jedamus, Marvin W. Peterson, and Associates. San Francisco: Jossey-Bass, 1980.

Gladieux Lawrence E., and Janet S. Hansen. The Federal Government, the States, and Higher Education: Issues for the 1980s. New York: College Entrance Examination Board, 1981.

Harris, Seymour E. A Statistical Portrait of Higher Education. New York: McGraw-Hill, 1972.

Leslie, Larry L. Student Financing. Boulder, Colo.: NCHEMS, 1982.

Machlup, Fritz. The Production and Distribution of Knowledge in the United States. Princeton: Princeton University Press, 1962.

O'Neill, June A. Sources of Funds to Colleges and Universities. Berkeley: Carnegie Commission on Higher Education, 1973.

Schultz, Theodore W. "Capital Formation by Education." Journal of Political Economy, 69 (December 1960):571-83.

U.S. Bureau of the Census. Governmental Finances 1972-73 [annually through 1979-80]. Washington, D.C.: U.S. Government Printing Office.