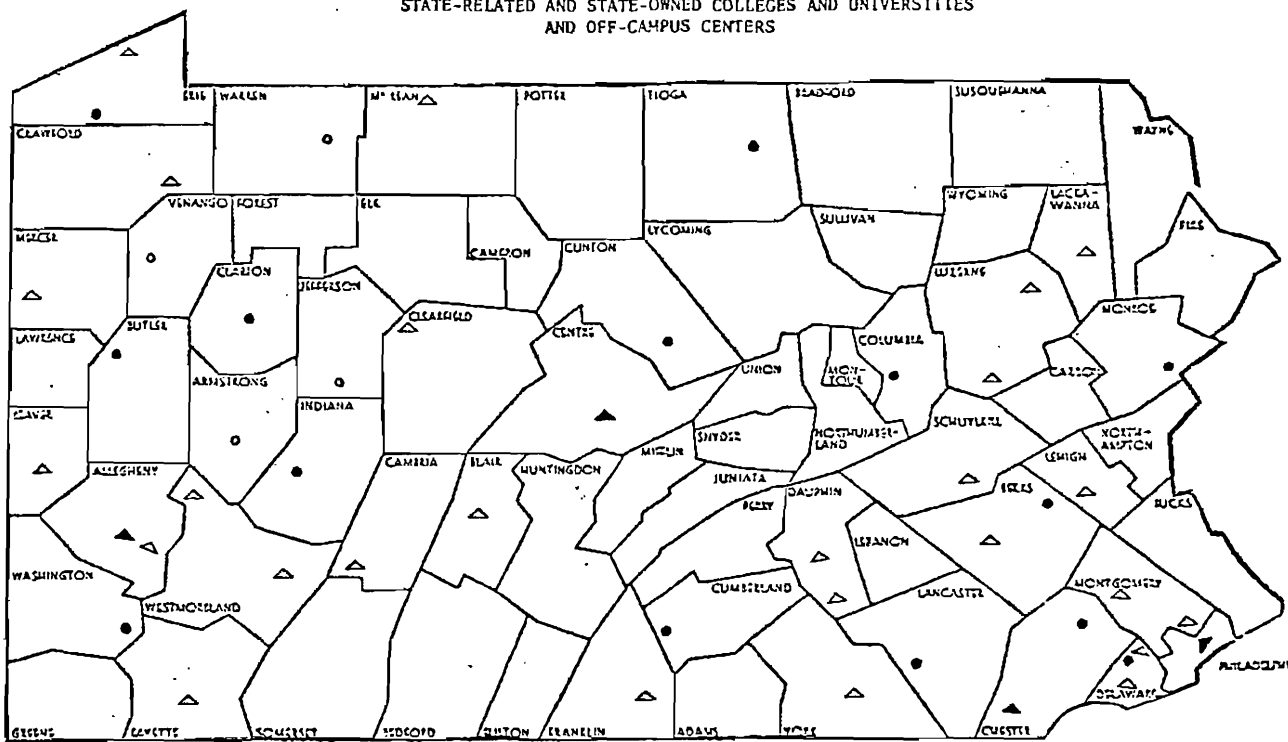


FACULTY OUTPUT AND SALARY COSTS
OF STATE-RELATED AND STATE-OWNED
COLLEGES AND UNIVERSITIES

ANALYSIS OF 1980-81 DATA
REPORTED UNDER 1980 APPROPRIATIONS ACTS
AND PUBLIC SCHOOL CODE

Staff Report of the
Joint State Government Commission of the
General Assembly of the Commonwealth of Pennsylvania
Harrisburg, Pennsylvania
February 1982

STATE-RELATED AND STATE-OWNED COLLEGES AND UNIVERSITIES
AND OFF-CAMPUS CENTERS



- ▲ State-related university
- State-owned colleges or university
- △ Branch of state-related university
- Branch of state-owned colleges or university

State-Related Universities

Penn State (Centre)
 Allentown Campus (Lehigh)
 Altoona Campus (Blair)
 Beaver Campus (Beaver)
 Behrend College (Erie)
 Berks Campus (Berks)
 Capitol Campus (Dauphin)
 Delaware Campus (Delaware)
 DuBois Campus (Clearfield)
 Fayette Campus (Fayette)
 Hazleton Campus (Luzerne)
 McKeesport Campus (Allegheny)
 Mont Alto (Franklin)
 New Kensington (Westmoreland)
 Ogontz Campus (Montgomery)
 Radnor Center for
 Graduate Studies (Delaware)
 Schuylkill Campus (Schuylkill)
 Shenango Valley Campus (Mercer)

Penn State (Centre) (Cont.)
 University Center
 at Harrisburg (Dauphin)
 Wilkes-Barre Campus (Luzerne)
 Worthington Scranton
 Campus (Lackawanna)
 York Campus (York)
 Pittsburgh (Allegheny)
 Bradford Campus (McKean)
 Greensburg Campus (Westmoreland)
 Johnstown Campus (Cambria)
 Titusville Campus (Crawford)
 Temple (Philadelphia)
 Ambler Campus (Montgomery)
 University Center
 at Harrisburg (Dauphin)
 Lincoln (Chester)

State-owned Colleges and University

Bloomsburg (Columbia)
 California (Washington)
 Cheyney (Delaware)
 Clarion (Clarion)
 Venango Campus (Venango)
 East Stroudsburg (Monroe)
 Edinboro (Erie)
 Warren Campus (Warren)
 Indiana University (Indiana)
 Armstrong Campus (Armstrong)
 Punxsutawney Campus (Jefferson)

Kutztown (Berks)
 Lock Haven (Clinton)
 Mansfield (Tioga)
 Millersville (Lancaster)
 Shippensburg (Cumberland)
 Slippery Rock (Butler)
 West Chester (Chester)

FOREWORD

The 1980-81 data compiled and summarized in this report were submitted in compliance with reporting requirements first introduced into the appropriations bills of the State-related universities by Senator Richard A. Snyder in 1972. The House of Representatives extended the mandate to the State-owned colleges and university in 1976.

This report is designed to provide the General Assembly--particularly the members of the appropriations and education committees of both houses--with an accurate, up-to-date analysis of instructional output at each institution and of the changes in cost and composition of output occurring over time.

Information on the various areas of study (HEGIS classifications)--required for the first time for 1980-81--provides useful insight into the concentrations of instruction and serves as an additional basis for cost analyses.

The Commission staff appreciates the care with which the administrative officials of most institutions prepared and submitted their data in observation of the September 1, 1981 deadline. HEGIS and cost data are not included for Cheyney State College because incomplete information was submitted after January 31, 1982. The release of this report was delayed due to last-minute revisions necessary to remove Indiana University's HEGIS and cost data from all tabulations. Sizable errors in Indiana's data resulting from computer programming difficulties were not uncovered by the university's personnel until February 10 after earlier requests for verification by Commission staff. It is hoped that in the future all institutions will fulfill their responsibility to report in an accurate, complete and timely manner.

DONALD C. STEELE
Research Director
Joint State Government Commission
108 Finance Building
Harrisburg, Pennsylvania

TABLE OF CONTENTS

FOREWORD	iii
SUMMARY	1
I. FACULTY OUTPUT	
General Trends	9
Production by Level and Institution	15
Full-Time Equivalent Students	15
Degrees	18
Lower and Upper Divisions	20
Master's, First Professional and Doctor's Production	23
Three-Year Change	25
Summer Term	25
Production by HEGIS Classification	28
Student Credit Hours	28
Degrees	34
II. FACULTY SALARY COST	
Policy Implications of Cost Evaluation	39
Instructional Salary Cost per Student Credit Hour	41
Cost by Level	41
Cost by HEGIS Classification	46
Class Size and Cost	48
Classroom Class Size	49
Quantitative Analysis	54
Courses Taught per Term	56
Faculty Workload and Salary Levels	59
Workweek Activities	59
Salaries	61
Appropriations and Tuition	67
APPENDIX	73

LIST OF TABLES

1.	Full-Time Equivalent Students by Level	16
2.	Degrees by Level	19
3.	Student Credit-Hour Production by Selected Level and Term	21
4.	Percentage of Student Credit-Hour Production by Level and Summer Term	22
5.	Components of Change in Student Credit-Hour Production over Three-Year Period	26
6.	Undergraduate Student Credit-Hour Production by HEGIS Classification	29
7.	Percentage Distribution of Undergraduate Student Credit-Hour Production by Selected HEGIS Classification and Total Undergraduate Production	33
8.	Graduate Level Student Credit-Hour Production and Percentage Distribution by Selected HEGIS Classification	35
9.	Number of Degrees Conferred by Major Field of Study and Percentage Distribution of All Degrees Granted by Level and Field of Study	37
10.	Instructional Faculty Salary Cost Per Full-Time Equivalent Student and Student Credit Hour Produced . . .	42
11.	Undergraduate Instructional Salary Cost Per Undergraduate Student Credit Hour for All Instruction and Selected HEGIS Classification by Institution	44
12.	Average Instructional Salary Cost Per Student Credit Hour for All Instruction and Selected HEGIS Classification by Level	47
13.	Average Class Size in Classroom Instruction by Level	50
14.	Upper-Division Average Classroom Class Size and Upper-Division Average Instructional Salary Cost Per Student Credit Hour by Selected HEGIS Classification	53
15.	Student Credit Hours in Individual Instruction and Percentage Distribution of Total Production by Level . .	55
16.	Average Student Credit-Hour Production Per Course Taught During Each Term of Academic Year	58
17.	Full-Time Faculty Workweek Activities	60
18.	Average Salary of Full-Time Equivalent Instructional Faculty and Percentage Distribution by Rank	62
19.	Average Instructional Faculty Salaries by Category and Rank	65
20.	Appropriations Related to Tuition and Fee Revenues and Production	68
1A-12A.	Historical and Other Tables	73-85

FACULTY OUTPUT

1. In line with the national trend, the number of full-time equivalent students at the State-related and State-owned institutions of higher learning has leveled off since the mid-1970s. Colleges and universities nationwide are about to experience a substantial decline in enrollments--reflecting a diminishing college-age population--which is predicted to extend into the 1990s (pp. 9-13).

2. From 1979-80 to 1980-81, the overall increase in full-time equivalent students at the 18 State-related and State-owned institutions is small (about 2 percent or 3,100 students). In the three-year period since 1977-78, full-time equivalent undergraduate students increased at an average annual rate of less than 1 percent. At the graduate level, full-time equivalent students declined at an average annual rate of 1 percent.

(table 1, p. 16)

3. The level pattern of bachelor's degrees conferred by the State-related institutions parallels the national trend throughout the 1970s. Their level pattern of graduate degrees is significantly different from the upward national trend. From 1977-78 to 1980-81, bachelor's degrees conferred at all institutions decreased at an average annual rate of 2 percent and graduate degrees at an annual rate of 1 percent. Master's degrees at the State-owned colleges and university--with 64 percent in education--declined at an average annual rate of 4 percent. (figure 3, p. 14, and table 2, p. 19)

4. For all institutions, losses in upper-division student credit-hour production in the three-year period from 1977-78 to 1980-81 reduced gains at the lower-division level by half. In fact, the magnitude of the decrease in upper-division output at the State-owned institutions was about the same as the lower-division increase. (table 5, p. 26) A large portion of the overall decline in master's output from 1977-78 was offset by increases in first professional output at Pittsburgh and Temple and in doctoral output at Penn State and Pittsburgh. (appendix table 2A, pp. 74-75)

5. About 60 percent of all undergraduate student credit-hour output occurs in six HEGIS classifications--social sciences, letters, education, business and management, mathematics and physical

sciences. Engineering also accounts for substantial portions of total undergraduate output at Penn State and Pittsburgh. About 20 percent of all undergraduate production at the State-owned schools is in education. In 1979-80, most bachelor's degrees at the State-related universities were conferred in business and management (17 percent), engineering (14 percent) and education (9 percent). The leading areas of bachelor's degree output at the State-owned colleges and university were education (34 percent), business and management (17 percent) and social sciences (11 percent). (tables 6, 7 and 9, pp. 29, 33 and 37)

6. More than 60 percent of graduate student credit-hour output at the State-owned colleges is in education. More than 80 percent of all graduate output at Temple and about two-thirds at Pittsburgh are in four areas: health professions, education, business and management and law. In 1980-81, Penn State's greatest concentration was in education (21 percent) followed by physical sciences (14 percent) and engineering (13 percent). Overall, the State-related universities in 1979-80 conferred 27 percent of their graduate degrees in education, 17 percent in the health professions, 10 percent in business and management, 9 percent in public affairs and services, 8 percent in law and 6 percent in engineering. (tables 8 and 9, pp. 35 and 37)

7. Student demand is high in degree programs with brighter career prospects, such as engineering, business and management and the health professions. Since 1978, business and management, nursing and human services (health) have been added to the educational missions of a number of State-owned colleges (p. 32). The Governor's Executive Budget, 1982-83, cautions the State-owned colleges and university "not to move too dramatically" to further expand business programs because "future employment prospects do not appear to support the projected rate of expansion." The budget report projects by 1985 an "oversupply of registered nurses with associate degrees and certificates and an undersupply of nurses with baccalaureate, master's or doctoral degrees." The budget report calls attention to the shortage of mathematics, chemistry and physics teachers and to the need for mid-career educational opportunities for engineers.

FACULTY SALARY COST

8. A study issued by the Carnegie Council on Policy Studies found widely disparate costs per student among institutions with comparable student clientele and academic quality, lending support to the growing suspicion of "many taxpayers, legislators and donors that wide variance in costs does not necessarily produce correspondingly varying results." The author concludes that "the current concern of legislators

and donors for cost analysis and accountability is an indication of the uneasiness with which public leaders view this situation. . . ." (pp. 39-41)

9. Joint State Government Commission staff analysis has found stable relationships between instructional faculty salary cost and:
 - a. Scale of an institution's undergraduate output--For example, the instructional faculty salary cost per full-time equivalent undergraduate student is \$880 at Penn State, \$1,280 at West Chester and \$1,580 at Mansfield. (The respective number of full-time equivalent undergraduate students at each of these institutions is 51,400, 7,400 and 2,300.) At the master's level the economies of scale are far less apparent. (table 10, p. 42)
 - b. Level of instruction--Overall the State-related universities' instructional salary cost per student credit hour at the upper-division level is \$46, almost twice the lower-division cost of \$25. The master's level credit-hour cost for all instruction is \$90 and the doctor's level cost is \$211. (table 12, p. 47)
 - c. Average class size in classroom instruction--A regression equation based on 129 upper-division

observations in 14 HEGIS classifications at the State-owned colleges estimates a savings of about \$6 in cost per upper-division student credit hour if the average classroom class size is increased by one student. (table 14, p. 53, and pp. 54-56) At this level, business and management class sizes are among the largest with costs per credit hour among the lowest. Foreign languages, fine and applied arts and physical sciences have small class sizes and high costs.

- d. Individual instruction--The regression equation also predicts an additional cost of about \$2 per upper-division student credit hour for each percentage increase in production in individual instruction in each HEGIS classification at the State-owned colleges. (table 15, p. 55, and appendix table 8A, p. 81)

10. In 1980-81, average class sizes for all undergraduate classroom instruction ranged from 31 at Penn State to 16 at Lincoln. At the lower-division level, three mid- to small-size State-owned institutions--Clarion, Kutztown and East Stroudsburg--had average classroom class sizes (34, 33 and 32, respectively) equal to

or larger than those of Penn State (32) and Pittsburgh (31). Average class sizes at the master's level ranged from 17 at Pittsburgh to 6 at Cheyney. (table 13, p. 50)

11. Faculty at nine of the institutions spent fewer weekly hours in classroom contact in 1980-81 than in 1979-80. The overall average weekly contact hours for the State-related universities is 10.1 and for the State-owned institutions, 11.9. Faculty at the large State-related universities spend more time in graduate contact and research than faculty at the other institutions. (table 17, p. 60)

12. Five institutions--Temple, Edinboro, Slippery Rock, California and Mansfield--decreased the number of full-time equivalent instructional faculty from 1979-80 by more than 5 percent. (table 18, p. 62)

13. From 1979-80 to 1980-81, the average salary for all full-time equivalent instructional faculty increased by 9 percent at Penn State, 11 percent at Pittsburgh, 10 percent at Temple and 7 percent overall at the State-owned institutions. Pittsburgh's average of \$20,700 is the lowest of all institutions except Lincoln and California's average of \$26,800 is the highest of all for which comparable data are available. The overall average instructional faculty salary for the State-owned institutions with comparable data is

\$24,800 as compared with \$21,000 for the State-related universities. The principal reason for the difference is the far greater use of instructors and lower-salaried nonranked faculty by the State-related universities. (table 18, p. 62)

14. Full-time ranked faculty at the State-owned institutions have higher salaries than faculty at representative public institutions in neighboring states and private institutions in Pennsylvania. With the exception of Lincoln, ranked faculty salaries at the main campuses of the State-related and State-owned institutions are well above the national averages. (table 19, p. 65, and pp. 64-67)

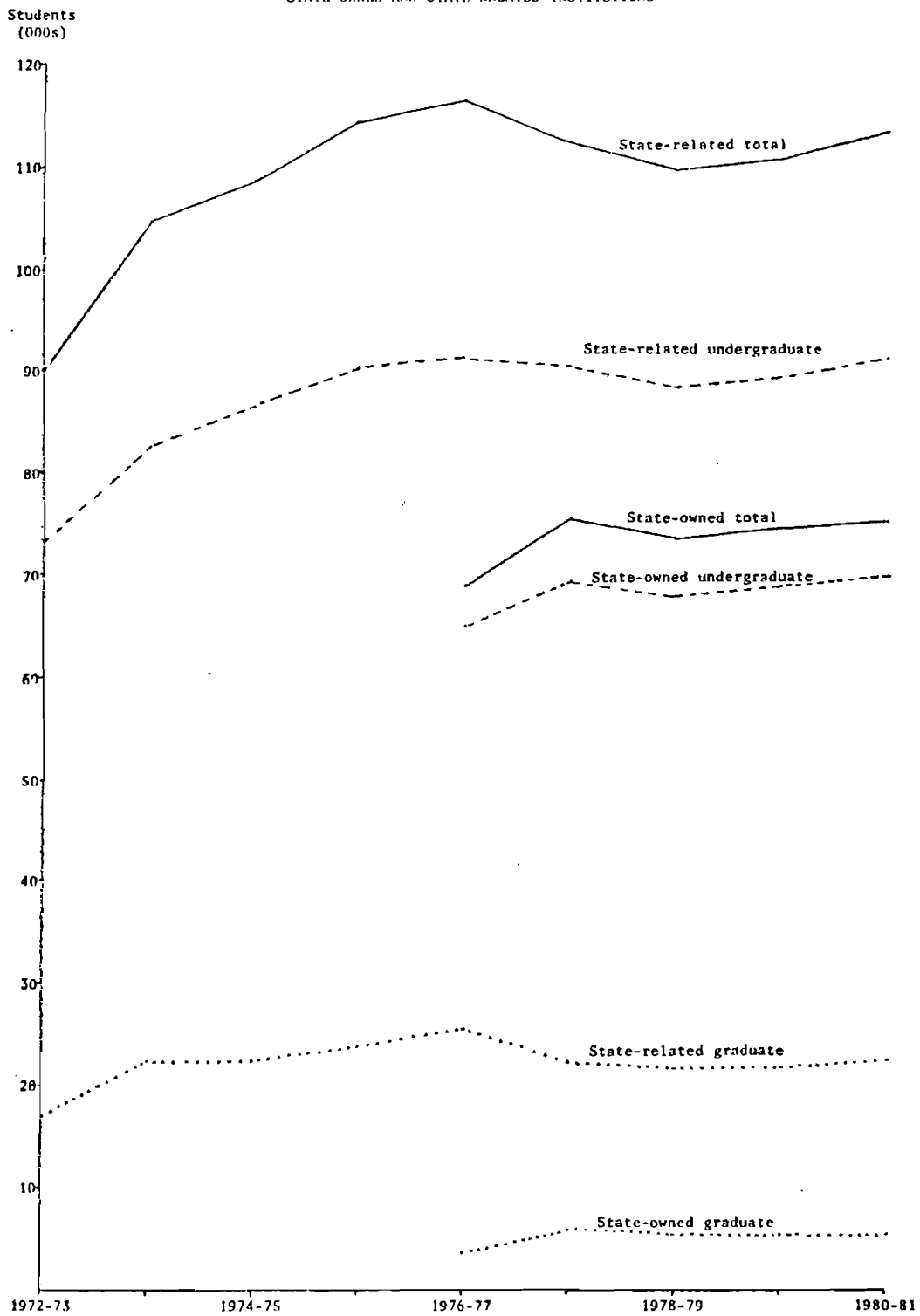
15. The Commonwealth pays a premium price for instruction at smaller institutions. The 1980-81 appropriation per full-time equivalent student ranged from \$1,690 at Penn State to \$4,520 at Cheyney. The portion of total instructional cost (allocated appropriation plus tuition) which the Commonwealth assumes is also inversely related to institutional size. The Commonwealth, which assumes 58 percent of instructional cost for all institutions, accounts for 50 percent of cost at the State-related universities and 71 percent at the State-owned colleges and university. (table 20, p. 68)

I. FACULTY OUTPUT

GENERAL TRENDS

Altogether the State-related and State-owned colleges and universities have maintained a high and stable level of full-time equivalent students over the past several years. Figure 1 shows the total full-time equivalent students at the undergraduate and graduate levels of the State-related universities from 1972-73--the first year for which data were reported under the Snyder amendments--and of the State-owned colleges and university from their first reported year (1976-77) to 1980-81. As the chart illustrates, the early 1970s in Pennsylvania saw a continuation of the upward surge in higher education which characterized the 1960s throughout the country. The leveling off during the last half of the decade also reflects national trends. Total full-time equivalent students at all levels of the State-related and State-owned schools over the last three years (1977-78 to 1980-81) increased at an average annual rate of less than 1 percent. Individually, only 2 of the 18 have registered an average annual rate of increase of more than 1 percent and 4 have reported an average annual decline of 2 percent or more (table 1, p. 16).

Figure 1
 FULL-TIME EQUIVALENT STUDENTS
 OF PENNSYLVANIA
 STATE-OWNED AND STATE-RELATED INSTITUTIONS



NOTE: Data for each year represent the summer term preceding the academic year plus the academic year. Full-time equivalent students are calculated by dividing undergraduate student credit hours by 30 and graduate student credit hours by 24.

SOURCE: Reports provided by individual institutions, 1973-81.

Most forecasters predict a steady national decrease in student enrollments throughout the 1980s. The Pennsylvania Department of Education anticipates that enrollments at the State-related and State-owned institutions will drop 18 percent from fall 1980 to fall 1990.¹ A special report to the College Board summarizes the underlying causes of the rise and expected decline:

Enrollments at colleges and universities have climbed to record levels in the past 25 years. In the 1960s alone, undergraduate enrollment doubled to 4 million and total enrollment rose to 8.6 million (Carnegie Foundation for the Advancement of Teaching, 1975). A number of conditions have combined to produce this growth. Foremost is a population boom that doubled not only the college-age population between 1953 and 1977 but also the demand for college-trained teachers at all levels. The market for college-educated people was further fueled by extraordinary expansion in the economy. Pressures for equality of opportunity have also brought unprecedented numbers of blacks, women, and disadvantaged students to the campuses during the past decade.

Recently, however, much of this has changed or is in the process of changing. The annual double-digit increases in enrollment that were common in the 1960s have shrunk to the more typical 2 to 4 percent annual growth of the 1970s; and much of this growth can be attributed to older students. Most projections for the next 10 or 20 years . . . forecast enrollment declines. Growth in the sectors of the economy that draw most heavily on college graduates has already slowed substantially. And the size of the college-age population--the most important factor affecting future

1. Division of Education Statistics, Projections: Selected Education Statistics for Pennsylvania to 1990-91 (Harrisburg: 1981), table 6, p. 13.

college rates--will shortly begin to decline. By 1990 . . . the 18- to 21-year-old population will return to its 1970 level, just above 14 million. The decrease between 1980 and 1990 will be about 18 percent. . . . And by 1995, the 18- to 21-year-old population is expected to drop to about 13 million, representing a 25 percent decline from the 1979 peak.

Adults, women, and minorities are frequently mentioned as groups that could help alleviate projected enrollment declines in the 1980s. . . . most enrollment projections . . . have taken those trends into account. Whether any of the groups will exceed past trends and have a dramatic effect on enrollment in the 1980s seems unlikely according to the current evidence.²

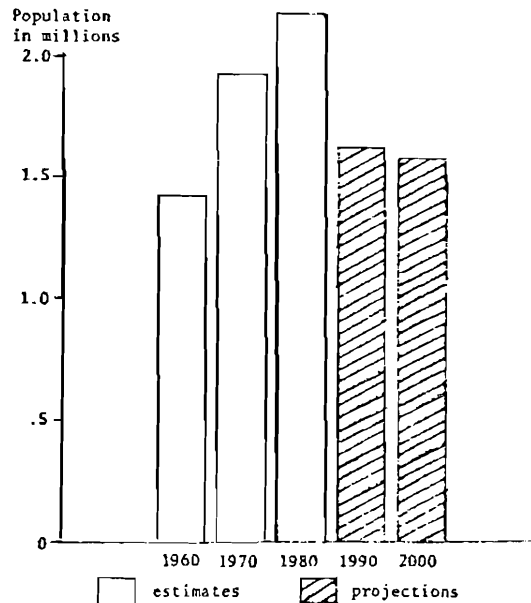
Figure 2, showing the long-term trend in the 15- to 24-year-old age group in Pennsylvania (data are not available for the more specific 18- to 21-year-old group), indicates a sharp projected drop between 1980 and 1990. The drop between 1980 and 1995 is expected to be about 30 percent. After 1995 the size of the 15- to 24-year-old age group is expected to rise.

Some schools will be better able to maintain their enrollment levels in the future than others. Characteristics expected to give a competitive edge are academic distinction, programs of study with good employment prospects, accessibility to part-time and commuter students and competitive tuition rates, although in the case of prestigious institutions high tuitions are not expected to significantly deter applicants.

2. John A. Centra, College Enrollment in the 1980s: Projections and Possibilities (College Entrance Examination Board, Princeton, N.J.: 1978), pp. 1 and 15.

Figure 2

ESTIMATES AND PROJECTIONS OF THE POPULATION
OF PENNSYLVANIA, BY AGE: 15-24 YEARS
1960-2000



SOURCE: George E. Brehman Jr., Conditions of Education in Pennsylvania - Present, Past and Future (Pennsylvania Department of Education, Harrisburg: February 1979).

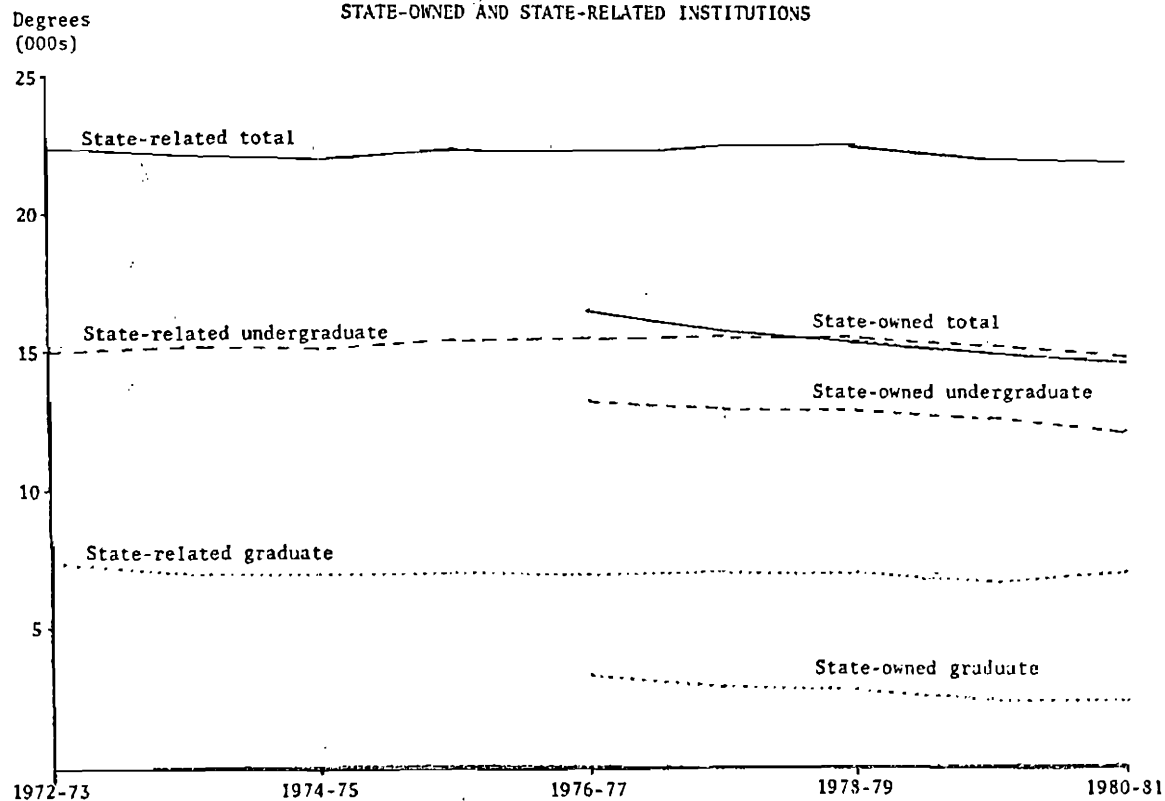
Pennsylvania Department of Commerce, Pennsylvania Statistical Abstract, 21st ed., 1979 and 23rd ed., 1981.

While full-time equivalent students increased since 1972-73, the trend in bachelor's degrees reported by the State-related schools under the Snyder amendments (figure 3) indicates a level pattern similar to the national trend.³ The State-related institutions' patterns at the graduate level during the 1970s differ significantly from the national trend which shows a steady increase (about 20 percent from 1972-73 to 1978-79).

3. W. Vance Grant and Leo J. Eiden, National Center for Education Statistics, Digest of Education Statistics 1981 (U.S. Government Printing Office, Washington, D.C.: 1981), p. 132.

Figure 3

DEGREES CONFERRED AT PENNSYLVANIA
STATE-OWNED AND STATE-RELATED INSTITUTIONS



NOTE: Undergraduate degrees include bachelor's degrees only. Graduate degrees include master's at all institutions except Lock Haven which does not have a master's program, first professional and doctor's at Pittsburgh and Temple and doctor's at Penn State and Indiana University.

SOURCE: Reports provided by the State-related individual institutions, 1973 through 1981 and the State-owned institutions, 1977 through 1981.

The decreasing degree production at the State-owned schools--more heavily concentrated in education degrees, particularly at the graduate level--reflects the weakened job prospects for teachers. All degrees conferred at the Pennsylvania State-related universities decreased at the average annual rate of 1 percent from 1977-78 to 1980-81 and at the State-owned institutions at the average rate of 2 percent (table 2, p. 19).

PRODUCTION BY LEVEL AND INSTITUTION

Full-Time Equivalent Students

Overall, changes from 1979-80 to 1980-81 were small (table 1). Total production at all levels increased by approximately 2 percent--3,106 full-time equivalent students, all but 689 of which were at the undergraduate level. Since 1977-78 full-time equivalent students increased at an average annual rate of less than 1 percent; total graduate production decreased at an average annual rate of 1 percent, with graduate production at the State-owned schools dropping at the average annual rate of 3 percent. Noteworthy observations include:

--Institutions with large one-year percentage increases in undergraduate full-time equivalent students are Pittsburgh (4 percent), Millersville (5 percent), Kutztown (5 percent) and Lock Haven (6 percent). Significant losses are shown for Lincoln (17 percent) and Cheyney (9 percent).

Table 1

1980-81 FULL-TIME EQUIVALENT STUDENTS BY LEVEL¹
CHANGE FROM 1979-80 AND THREE-YEAR AVERAGE ANNUAL RATE OF CHANGE (1977-78 to 1980-81)

Institution ²	All levels				Undergraduate level				Graduate level			
	Students	One-year change	Percentage change		Students	One-year change	Percentage change		Students	One-year change	Percentage change	
			One year	Three-year average			One year	Three-year average			One year	Three-year average
State-related												
Penn State	55,994	1,444	3%	1%	51,374	1,237	2%	1%	4,620	207	5%	-1%
Pittsburgh	29,011	735	3	1	20,760	819	4	1	8,251	-84	-1	-1
Temple	26,987	425	2	-1	17,852	-109	-1	-2	9,135	534	6	1
Lincoln	1,217	-195	-14	1	998	-209	-17	-4	219	14	7	119
Total	113,209	2,409	2	a	90,984	1,738	2	a	22,225	671	3	a
State-owned												
Indiana ³	12,648	221	2	2	11,805	204	2	2	843	17	2	2
West Chester	8,189	1	a	-a	7,417	-32	-a	-a	772	33	4	-1
Bloomsburg	6,354	-12	-a	a	5,901	26	a	1	453	-38	-8	-3
Millersville	5,829	229	4	1	5,189	233	5	2	640	-4	-1	-4
Edinboro ³	5,541	185	3	-1	5,095	149	3	-1	446	36	9	-2
Shippensburg	5,467	-33	-1	-a	4,920	-3	-a	1	547	-30	-5	-6
Slippery Rock	5,460	-76	-1	-2	5,152	-26	-1	-2	308	-50	-14	-5
Clarion	5,262	-37	1	1	5,034	-57	-1	2	228	20	10	-4
Kutztown	4,762	241	5	1	4,474	232	5	2	288	9	3	-3
California	4,226	158	4	-2	3,850	126	3	-2	376	32	9	-3
East Stroudsburg	4,090	-6	-a	-1	3,737	-39	-1	-1	353	33	10	-1
Lock Haven	2,526	142	6	2	2,526	142	6	2	n.a.	n.a.	n.a.	n.a.
Mansfield	2,451	-88	-3	-2	2,312	-69	-3	-2	139	-19	-12	2
Cheyney	2,143	-228	-10	-7	2,078	-207	-9	-7	65	-21	-24	-18
Total	74,948	697	1	-a	69,490	679	1	-a	5,458	18	a	-3
All institutions	188,157	3,106	2	a	160,474	2,417	2	a	27,683	689	3	-1

1. Data for each year represent the summer term preceding the academic year plus the academic year. Full-time equivalent students are calculated by dividing undergraduate student credit hours by 30 and graduate student credit hours by 24.

2. Listed from largest to smallest in full-time equivalent students for 1980-81.

3. Edinboro student credit-hour data for fiscal year 1977-78 and Indiana University student credit-hour data for fiscal years 1979-80 and 1980-81 from "State College and University Budgeting System Common Cost Accounting Reports."

a. Rounds to less than 1 percent.

n.a. Not applicable.

SOURCE: Reports provided by the individual institutions, 1977, 1978, 1979, 1980 and 1981.

--Penn State alone accounts for over 30 percent of the total undergraduate full-time equivalent students at the 18 institutions and Pittsburgh and Temple account for almost two-thirds of all full-time equivalent graduate students. Penn State's undergraduate output increased by over 1,230 students (2 percent) from 1979-80. Temple's graduate production increased by about 530 students (6 percent) and Penn State's by about 200 (5 percent) over 1979-80.

--The only schools showing an increase in graduate full-time equivalent students in the three-year period (1977-78 to 1980-81) are Temple, Lincoln, Indiana and Mansfield. Lincoln's graduate program was established in 1976. Percentage decreases have been sizable at a number of the State-owned schools.

--Graduate level production accounts for about 10 percent or less of total 1980-81 production at Penn State and each of the State-owned institutions. Nine of the 13 State-owned schools with graduate programs have less than 500 full-time equivalent graduate students.

Appendix table 1A, p. 73, includes the number of full-time equivalent students and degrees reported each year since 1977-78.

Degrees

Total bachelor's degrees conferred (table 2) have decreased at an average annual rate of 2 percent since 1977-78 and graduate degrees at an average annual rate of 1 percent. Among significant observations are:

--Penn State and Temple--each with a 4 percent decrease in bachelor's degree production--together account for 440 of the total decrease of 736 from 1979-80. Penn State produced 30 percent of all bachelor's degrees awarded.

--Schools with bachelor's degrees down 10 percent or more in the three-year period from 1977-78 are West Chester (12 percent), Edinboro (24 percent), California (18 percent), East Stroudsburg (12 percent), Lock Haven (15 percent), Mansfield (24 percent) and Cheyney (12 percent). Only 4 of the 18 institutions (Indiana, Bloomsburg, Millersville and Shippensburg) increased bachelor's degree production since 1977-78.

--Penn State's 20 percent one-year increase in graduate degrees outweighed its loss in bachelor's degrees.

--Five institutions--Penn State, Indiana, Bloomsburg, East Stroudsburg and Mansfield--awarded more graduate degrees in 1980-81 than in 1977-78.

Table 2
1980-81 DEGREES BY LEVEL¹
CHANGE FROM 1979-80 AND THREE-YEAR AVERAGE ANNUAL RATE OF CHANGE (1977-78 to 1980-81)

Institution ²	Bachelor's and graduate				Bachelor's				Graduate			
	Degrees	One-year change	Percentage change One year Three-year average		Degrees	One-year change	Percentage change One year Three-year average		Degrees	One-year change	Percentage change One year Three-year average	
State-related												
Penn State	9,963	32	a	a	8,024	-295	-4%	-1%	1,939	327	20%	3%
Pittsburgh	6,117	53	1%	-1%	3,446	-14	a	-1	2,671	67	3	-1
Temple	5,395	-192	-3	-2	3,101	-145	-4	-3	2,294	-47	-2	-1
Lincoln	253	37	17	21	152	-29	-16	-1	101	66	189	99 ^b
Total	21,728	-70	-a	-1	14,723	-483	-3	-1	7,005	413	6	a
State-owned												
Indiana	2,657	-16	-1	3	2,217	-38	-2	2	440	22	5	6
West Chester	1,360	p.d.	p.d.	-5	1,063	p.d.	p.d.	-4	297	p.d.	p.d.	-7
Bloomsburg	1,327	16	1	1	1,088	14	1	1	239	2	1	1
Millersville	1,085	3	a	-2	917	23	3	a	168	-20	-11	-9
Edinboro	1,012	-62	-6	-9	797	-40	-5	-8	215	-22	-9	-10
Shippensburg	1,384	-5	-a	2	1,017	-1	-a	4	367	-4	-1	-4
Slippery Rock	1,063	-89	-8	-3	955	-48	-5	-2	108	-41	-28	-8
Clarion	961	-40	-4	-3	834	-47	-5	-2	127	7	6	-8
Kutztown	835	-60	-7	-3	708	-54	-7	-2	127	-6	-5	-9
California	825	-26	-3	-7	664	-36	-5	-6	161	10	7	-7
East Stroudsburg	767	1	a	-3	677	-9	-1	-4	90	10	12	8
Lock Haven	401	6	2	-5	401	6	2	-5	n.a.	n.a.	n.a.	n.a.
Mansfield	462	-35	-7	-6	400	-48	-11	-8	62	13	27	33
Cheyney	369	21	6	-5	343	25	8	-4	26	-4	-13	-11
Total	14,508	-286^c	-2^c	-2	12,081	-253^c	-2^c	-2	2,427	-33^c	-2^c	-4
All institutions	36,236	-356^c	-1^c	-1	26,804	-736^c	-3^c	-2	9,432	380^c	4^c	-1

1. Graduate degrees include master's at all institutions except Lock Haven which does not have a master's program, first professional and doctor's at Pittsburgh and Temple and doctor's at Penn State and Indiana University.

2. Listed from largest to smallest in full-time equivalent students for 1980-81.

a. Rounds to less than 1 percent.

b. Two-year annual average.

c. Does not include West Chester.

n.a. Not applicable.

p.d. Poor data.

SOURCE: Reports provided by the individual institutions, 1981.

--The three large State-related universities in 1980-81 conferred 73 percent of the graduate degrees reported--Pittsburgh, 28 percent; Temple, 24 percent; and Penn State, 21 percent.

--In 1980-81, Penn State conferred 457 doctor's degrees, 9 percent more than in 1972-73; Pittsburgh awarded 350, 13 percent fewer; and Temple awarded 230, 4 percent more.⁴

--In 1980-81, Pittsburgh conferred 364 first professional degrees (excluding medical), 10 percent more than in 1972-73 and Temple conferred 623, 29 percent more.

Lower and Upper Divisions

Table 3 presents undergraduate student credit-hour production by division and total summer-term production. Table 4 includes a percentage distribution of production for each institution. Overall, lower-division production is increasing and upper-division declining. Total lower-division production increased over the last three years at an average annual rate of 1 percent. Total upper-division production increased by less than 1 percent over 1979-80

4. According to Digest of Education Statistics 1981, p. 134, among the institutions of higher education in the nation, Penn State ranked 19th, University of Pittsburgh ranked 22nd and Temple ranked 55th in the number of doctor's degrees conferred from 1969-70 to 1978-79.

Table 3

1980-81 STUDENT CREDIT-HOUR PRODUCTION BY SELECTED LEVEL AND TERM¹
CHANGE FROM 1979-80 AND THREE-YEAR AVERAGE ANNUAL RATE OF CHANGE (1977-78 to 1980-81)
(Credit hours in 000s)

Institution ²	Total year 1980-81 undergraduate production						1980 summer-term production		
	Lower division			Upper division			Credit hours	Percentage change	
	Credit hours	One year	Three-year average	Credit hours	One year	Three-year average		One year	Three-year average
State-related									
Penn State	1,003	4%	3%	538	0%	-2%	94	4%	-2%
Pittsburgh	406	5	a	217	2	3	120	6	-1
Temple	295	-a	-3	241	-1	-1	77	4	-1
Lincoln	24	13	-3	6	-33	-10	5	-4	25
Total	1,728	3	1	1,002	-a	-1	296	4	-1
State-owned									
Indiana ³	235	-1	2	119	7	2	b	b	b
West Chester	157	1	3	66	-3	-5	26	13	1
Bloomsburg	112	a	1	65	1	-1	20	4	3
Millersville	124	7	3	32	-2	-3	24	14	1
Edinboro ³	108	4	1	45	2	-5	16	15	b
Shippensburg	107	-2	a	41	5	2	16	-2	3
Slippery Rock	114	2	-1	41	-7	-4	12	-1	-6
Clarion	112	-1	3	39	-1	-1	11	11	16
Kutztown	91	7	3	43	2	-2	9	13	-4
California	85	6	-2	31	-3	-1	14	12	-4
East Stroudsburg	78	-2	-a	34	2	-4	15	10	-1
Lock Haven	60	8	5	16	-2	-6	3	-21	-14
Mansfield	50	-2	-1	20	-4	-6	6	3	-1
Cheyney	46	-7	7	16	-14	-5	4	-1	-11
Total	1,479	1	1	608	a	-2	c	c	c
All institutions	3,207	2	1	1,610	a	-2	c	c	c

1. Data for each year represent the summer term preceding the academic year plus the academic year.
2. Listed from largest to smallest in full-time equivalent students for 1980-81.
3. Edinboro student credit-hour data for fiscal year 1977-78 and Indiana University data for fiscal years 1979-80 and 1980-81 from "State College and University Budgeting System Common Cost Accounting Reports." Data from this source are not available by terms.
 - a. Rounds to less than 1 percent.
 - b. See footnote 3.
 - c. Data not available for all institutions.

SOURCE: Reports provided by the individual institutions, 1977, 1978, 1979, 1980 and 1981.

Table 4

PERCENTAGE OF 1980-81 STUDENT CREDIT-HOUR PRODUCTION BY LEVEL AND SUMMER TERM¹

Institution ²	Total year					1980 summer term		
	Undergraduate			Graduate		Total	Under-graduate	Graduate
	Total under-graduate	Lower-division	Upper-division	Master's and first professional	Doctor's			
State-related								
Penn State	93%	61%	32%	3%	4%	6%	4%	2%
Pittsburgh	76	50	26	20	4	15	9	6
Temple	71	39	32	28	1	10	6	4
Lincoln	85	69	16	15	n.a.	15	13	2
Total	84	53	31	13	3	9	6	3
State-owned								
Indiana ³	95	63	32	5	--a	--b	--b	--b
West Chester	92	65	27	8	n.a.	11	8	3
Bloomsburg	94	60	34	6	n.a.	11	8	3
Millersville	91	72	19	9	n.a.	14	9	5
Edinboro	93	65	28	7	n.a.	10	7	3
Shippensburg	92	67	25	8	n.a.	10	7	3
Slippery Rock	95	70	25	5	n.a.	7	6	1
Clarion	97	72	25	3	n.a.	7	6	1
Kutztown	95	64	31	5	n.a.	6	4	2
California	93	68	25	7	n.a.	11	9	2
East Stroudsburg	93	65	28	7	n.a.	13	8	5
Lock Haven	100	79	21	n.a.	n.a.	4	4	n.a.
Mansfield	95	69	26	5	n.a.	8	6	2
Cheyney	98	72	26	2	n.a.	6	5	1
Total	94	67	27	6	n.a.	--c	--c	--c
All institutions	88	59	29	10	2	--c	--c	--c

1. Data for each year represent the summer term preceding the academic year plus the academic year.

2. Listed from largest to smallest in full-time equivalent students for 1980-81.

3. Indiana University student credit-hour data for 1980-81 from "State College and University Budgeting System Common Cost Accounting Reports." Data from this source are not available by terms.

a. Included in master's level.

b. See footnote 3.

c. Data not available for all institutions.

n.a. Not applicable.

SOURCE: Reports provided by the individual institutions, 1981.

and registers a 2 percent average annual decrease since 1977-78.

Particularly noteworthy data include:

--Eleven schools increased lower-division production from 1979-80 and only one (Cheyney) had a one-year decline of more than 2 percent. Only Temple and Lincoln have a three-year average annual rate of decline in lower-division production as great as 3 percent.

--The 14 State-owned schools overall have 71 percent and the State-related universities 63 percent of their total undergraduate production at the lower-division level.

--Indiana reports a 7 percent one-year jump in upper-division production; Lincoln's output dropped 33 percent and Cheyney's, 14 percent.

--Only Pittsburgh, Indiana and Shippensburg have increased upper-division production since 1977-78. At six schools--Lincoln, West Chester, Edinboro, Lock Haven, Mansfield and Cheyney--upper-division production declined over three years at an average annual rate of 5 percent or more.

Master's, First Professional and Doctor's Production

Appendix table 2A, pp. 74-75, gives reported student credit hours for each year since 1977-78 by level. All of the State-owned

institutions' graduate production is at the master's level, with the exception of Indiana University, which does not list its doctor's credit hours separately. Pertinent observations concerning the graduate production at the three large State-related universities include:

- For 1980-81, Pittsburgh and Temple report 24 and 29 percent of their respective credit hours at the graduate level with by far the largest proportion at the master's level. Pittsburgh leads in master's student credit hours (121,000) followed closely by Temple (114,000). The master's production at each of these universities is more than double that of Penn State (50,000).
- Since 1977-78, Pittsburgh's master's production has declined at an average annual rate of 2 percent and Penn State's at a rate of 3 percent. Temple's increased at an annual rate of almost 1 percent.
- Temple's reported first professional production (97,000 student credit hours) is more than twice Pittsburgh's and has grown at the average annual rate of 3 percent since 1977-78.
- Penn State leads in 1980-81 doctoral production (61,000 student credit hours). Its stable production at this level is almost double Pittsburgh's and

more than seven times Temple's. Unlike Pittsburgh and Temple, Penn State reported doctoral production greater than its master's production.

Three-Year Change

Table 5 illustrates the relative magnitude of changes in output at the various levels from 1977-78 to 1980-81. The change at each level has been calculated as a percentage of overall 1977-78 production. For all institutions together, increases in lower-division production alone would have increased total undergraduate production by 2 percent but upper-division decreases cut this gain in half, resulting in a net increase in undergraduate production of 1 percent. At the State-owned institutions, the lower-division increase was totally offset by the upper-division decrease. Overall, at the graduate level the slight increase in doctoral production was offset by a slight decrease in master's production.

Summer Term

The summer term is of interest in an analysis of cost because this term can be expensive when student credit-hour output is low in relation to summer salaries and other expenses. Also, the proportions of production at the undergraduate and graduate levels in the summer differ from those of the academic year. At the State-related universities, 9 percent of the total 1980-81 student

Table 5

COMPONENTS OF CHANGE IN STUDENT CREDIT-HOUR PRODUCTION¹
 OVER THREE-YEAR PERIOD (1977-78 to 1980-81)
 Change in Number of Student Credit Hours Produced from 1977-78 to 1980-81
 at each Level as a Percentage of Total 1977-78 Production

Institution ²	Total change	Lower division	Upper division	Master's and first pro- fessional	Doctor's
State-related					
Penn State	3%	6%	-3%	-a	a
Pittsburgh	2	a	2	-1%	1%
Temple	-5	-4	-1	1	-1
Lincoln	-1	-6	-7	12	n.a.
Total	1	2	-1	a	a
State-owned					
Indiana ³	6	4	2	a	b
West Chester	-a	5	-5	-a	n.a.
Bloomsburg	1	2	-1	-a	n.a.
Millersville	4	7	-2	-1	n.a.
Edinboro ³	-4	2	-5	-1	n.a.
Shippensburg	a	a	2	-2	n.a.
Slippery Rock	-6	-2	-3	-1	n.a.
Clarion	4	6	-1	-1	n.a.
Kutztown	4	6	-2	-a	n.a.
California	-6	-4	-1	-1	n.a.
East Stroudsburg	-4	-1	-3	-a	n.a.
Lock Haven	8	12	-4	n.a.	n.a.
Mansfield	-7	-2	-5	a	n.a.
Cheyney	-22	-16	-4	-2	n.a.
Total	-a	2	-2	-a	n.a.
All institutions	a	2	-1	-a	a

1. Data for each year represent the summer term preceding the academic year plus the academic year.

2. Listed from largest to smallest in full-time equivalent students for 1980-81.

3. Edinboro student credit-hour data for fiscal year 1977-78 and Indiana University student credit-hour data for fiscal year 1980-81 from "State College and University Budgeting System Common Cost Accounting Reports."

a. Rounds to less than 1 percent.

b. Included in master's and first professional level.

n.a. Not applicable.

SOURCE: Reports provided by the individual institutions, 1977, 1978 and 1981.

credit hours were produced in the summer, with two-thirds at the undergraduate level (table 4, p. 22). With respect to individual differences:

--Schools with the highest percentage of production in the summer are Pittsburgh (15 percent), Lincoln (15 percent), Millersville (14 percent) and East Stroudsburg (13 percent). At the other end of the scale are Lock Haven with 4 percent and Penn State, Kutztown and Cheyney, each with 6 percent.

--While only 5 schools report a decrease in summer production between 1979-80 and 1980-81, 10 have experienced an average annual decline since 1977-78. Over the three-year period, Lincoln has increased summer production at an average annual rate of 25 percent and Clarion at the rate of 16 percent. (table 3, p. 21)

--Pittsburgh--which leads the State in summer production--as well as Temple and Millersville produces 40 percent of summer credit hours at the graduate level. Pittsburgh produces 24 percent of its total graduate credit hours in the summer, Penn State 21 percent and Temple 14 percent (appendix table 2A, pp. 74-75).

PRODUCTION BY HEGIS CLASSIFICATION

Student Credit Hours

In 1981, the General Assembly required the State-related and State-owned institutions for the first time to submit data by program area or HEGIS classification--an acronym for the annual higher education general information survey of the National Center for Education Statistics. All schools complied with the legal requirement to report 1980-81 student credit hours for the lower and upper division of the undergraduate level and the graduate level by HEGIS classification, although Cheyney's data did not arrive until February 2, 1982, five months after the September 1 deadline and too late to be incorporated in the data in this report, and Indiana did not supply accurate information. Data for the individual schools appear in appendix table 3A, p. 76. Categorization of output by HEGIS classification provides comparable data with which to analyze study concentrations and to identify salary costs for each program area (chapter II).

Undergraduate--Table 6 presents undergraduate output for the 23 areas into which most production falls, the percentage of total undergraduate production in each and the percentage in upper-division instruction. Approximately 60 percent of all production occurs in six classifications--social sciences, letters, education, business and management, mathematics and physical sciences. Engineering also accounts for a substantial portion of total undergraduate output for the State-related institutions (7 percent).

Table 6

1980-81 UNDERGRADUATE STUDENT CREDIT-HOUR PRODUCTION BY HEGIS CLASSIFICATION
AND PERCENTAGE OF PRODUCTION AT UPPER-DIVISION LEVEL
(Credit hours in 000s)

HEGIS classification ¹	All institutions			State-related institutions			State-owned institutions ²		
	Number	Percentage of total	Percentage at upper division	Number	Percentage of total	Percentage at upper division	Number	Percentage of total	Percentage at upper division
Social sciences	629	14%	26%	347	13%	32%	282	17%	20%
Letters	572	13	19	338	12	23	234	14	13
Education	503	11	51	184	7	45	319	19	54
Business and management	420	10	54	251	9	59	169	10	47
Mathematics	369	8	9	237	9	10	132	8	8
Physical sciences	333	8	17	236	9	19	97	6	12
Fine and applied arts	253	6	28	147	5	36	106	6	18
Psychology	211	5	28	114	4	30	97	6	25
Engineering	199	5	71	199	7	71	--	--	--
Biological sciences	197	4	28	118	4	33	79	5	21
Foreign languages	122	3	17	79	3	19	43	3	13
Public affairs and services	104	2	60	66	2	69	38	2	46
Computer and information sciences	86	2	35	67	2	40	19	1	20
Health professions	82	2	76	60	2	78	22	1	70
Communications	56	1	59	46	2	61	10	1	46
Home economics	42	1	56	38	1	56	4	--a	51
Agriculture and natural resources	31	1	96	31	1	96	--	--	--
Interdisciplinary studies	21	--a	34	20	1	35	1	--a	16
Military science	11	--a	31	6	--a	38	5	--a	30
Architecture and environmental design	11	--a	59	11	--a	59	--	--	--
Area studies	9	--a	56	9	--a	56	--	--	--
Law	7	--a	40	7	--a	40	--	--	--
Library science	5	--a	62	--a	--a	39	5	--a	63
Other	126	3	8	119	4	7	7	--a	19
Total ³	4,399	100	33	2,730	100	37	1,669	100	28

1. Listed according to amount of undergraduate student credit-hour production, from largest to smallest, for all institutions except Cheyney and Indiana University.

2. Data exclude Cheyney because HEGIS classification data were not submitted as of February 1, 1982 and Indiana University because of poor data.

3. Because of rounding, percentage totals may not equal 100.

a. Rounds to less than 1,000 student credit hours or less than 1 percent of total production.

SOURCE: Reports provided by the individual institutions, 1981.

Low percentages of output at the upper-division level in some HEGIS classifications indicate that relatively few students are pursuing degrees in these areas. For example, while 8 percent of all production is in mathematics, only 9 percent of all mathematics credit hours are in upper-division work. On the other hand, 51 percent of all education credit hours and 54 percent of all business and management hours are in the upper division.

The proportions of output of the State-related and State-owned schools in most categories are similar with a few exceptions. At the 12 State-owned schools for which comparable data are available, 19 percent of production is in education as compared with 7 percent at the State-related institutions. Seven percent of the State-related production is in engineering while engineering-degree programs are not available at the State-owned schools or Lincoln.

More undergraduate engineering opportunities at the Commonwealth's publicly supported institutions would undoubtedly increase overall production. However, establishing new programs at this time would be very difficult and the need in future years may diminish. A recent article for the Washington Post by the director of graduate studies in civil and environmental engineering at Duke University describes the difficulties now encountered in engineering education:

Now that America's engineering schools are overcrowded, understaffed and poorly equipped, there seems to be an insatiable

demand for their graduates. A bachelor's degree in engineering can command a starting salary in the high 20s, well beyond the salaries of young assistant professors who spent four or five years beyond their own bachelor's degree to earn an engineering doctorate. This kind of inequity has precipitated a series of problems that have impeded engineering education Today some undergraduate engineering programs have six or seven applicants for every space in the freshman class, while graduate programs have a paucity of good applicants. The attraction of high-paying jobs has lured so many American engineering graduates away from graduate school that approximately half of the engineering graduate students in this country are now foreign. Since many junior faculty positions are filled with recent doctoral students, almost one-quarter of young faculty in engineering now have bachelor's degrees from foreign schools. At the same time, engineering faculties, already pared down in the early 1970s, are being further diminished by middle-aged faculty being wooed over to industry where they find substantial salary increases and improved research and development facilities.⁵

The demand in popular career-oriented fields is reflected in Penn State's main campus advance standing admission requirements applying to students transferring from the lower-division branch campuses: in addition to some basic requirements applicable to all, a liberal arts applicant needs only a minimum 2.0 cumulative grade point average and one foreign language course, while a business

5. Henry Petroski, "Help Engineering Schools" (Harrisburg) Evening News, January 25, 1982.

administration applicant must have a minimum 2.5 average and completion of 24 hours in specified business-related courses. A chemical, civil, electrical or mechanical engineering applicant is required to have a minimum 3.0 average.

In recent years, the State-owned schools are attempting to increase their opportunities in growing areas. Since 1978, business administration has been added to the missions of four State-owned schools (Edinboro, Kutztown, Millersville and Slippery Rock); nursing has been added at California (not implemented), Clarion and Millersville; and human services (health) at Bloomsburg and West Chester.

The percentage of upper-division output in each HEGIS category for the State-related schools exceeds the corresponding percentage for the State-owned schools with data with the exceptions of the education and library science categories.

Table 7, giving the percentage distribution within each school for the classifications with the greatest undergraduate output, shows considerable variations among the schools in areas of concentration. The percentage of credit hours in education ranges from 4 percent at Pittsburgh to 29 percent at East Stroudsburg, and in business and management, from 1 percent at East Stroudsburg to 26 percent at Clarion. The smaller schools tend to have greater concentrations in a few areas--particularly in education--than the larger schools.

Table 7

PERCENTAGE DISTRIBUTION OF 1980-81 UNDERGRADUATE STUDENT CREDIT-HOUR PRODUCTION
BY SELECTED HEGIS CLASSIFICATION AND TOTAL UNDERGRADUATE PRODUCTION

HEGIS classification	State-related				State-owned													
	Penn State	Pittsburgh	Temple	Lincoln	Indiana	West Chester	Bloomsburg	Millersville	Edinboro	Shippensburg	Slippery Rock	Clarion	Kutztown	California	East Stroudsburg	Lock Haven	Mansfield	Cheyney
Social sciences	11%	18%	11%	20%	p.d.	13%	20%	17%	15%	21%	15%	13%	21%	16%	21%	22%	14%	n.d.
Letters	13	11	13	17	p.d.	15	13	13	17	10	17	11	13	14	13	18	17	n.d.
Education	7	4	10	13	p.d.	20	16	18	15	11	19	13	25	24	29	25	25	n.d.
Business and management	9	3	17	10	p.d.	6	19	5	7	20	6	26	9	10	1	--	--	n.d.
Mathematics	9	9	6	13	p.d.	9	7	8	10	9	5	7	5	11	4	12	9	n.d.
Physical sciences	10	10	4	7	p.d.	7	5	10	7	4	6	4	4	4	9	4	4	n.d.
Fine and applied arts	4	7	7	7	p.d.	9	5	9	12	4	6	7	5	3	5	5	--	n.d.
Psychology	3	7	4	3	p.d.	4	6	5	7	7	4	6	7	7	4	8	6	n.d.
Engineering	8	9	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	n.d.
Biological sciences	5	4	2	7	p.d.	4	5	5	5	5	5	5	4	5	7	4	6	n.d.
All others	21	19	22	3	p.d.	14	5	10	5	8	15	10	7	5	7	4	20	n.d.
Total undergraduate production (000s)	1,541	623	536	30	354	223	177	156	153	148	155	151	134	116	112	76	69	62

n.d. No data provided by HEGIS classifications as of February 1, 1982.

p.d. Poor data.

NOTE: Selected HEGIS classifications listed according to amount of total undergraduate student credit-hour production, from largest to smallest, for all institutions except Cheyney and Indiana University. Institutions listed from largest to smallest in full-time equivalent students for 1980-81.

SOURCE: Reports provided by the individual institutions, 1981.

Graduate--Table 8 gives HEGIS output individually for the three large State-related universities and in toto for the State-owned schools and Lincoln University. Nearly a third of all production at Temple is in the health professions which together with education, business and management and law accounts for 81 percent of all graduate student credit hours. About two-thirds of Pittsburgh's graduate output is concentrated in the same four areas. The concentrations at Penn State--with the greatest in education (21 percent) followed by physical sciences (14 percent)--show more diversity.

The graduate output at the other institutions (excluding Cheyney and Indiana) is heavily concentrated in education (63 percent). The HEGIS classifications which rank second and third in graduate output at the State-owned schools and Lincoln are psychology (9 percent) and public affairs and services (6 percent).

Degrees

The Snyder amendments do not require the schools to categorize degrees by HEGIS classification. A publication of the Department of Education, however, does provide this information. The most recent HEGIS degree data (1979-80) are summarized in table 9 and presented for each school in appendix table 4A, p. 77.

Table 8

1980-81 GRADUATE LEVEL STUDENT CREDIT-HOUR PRODUCTION
AND PERCENTAGE DISTRIBUTION BY SELECTED HEGIS CLASSIFICATION¹
(Credit hours in 000s)

HEGIS classification ²	All institutions		Temple		Pittsburgh		Penn State		State-owned ³ and Lincoln	
	Number	Percentage of total	Number	Percentage of total	Number	Percentage of total	Number	Percentage of total	Number	Percentage of total
Education	184	29%	48	22%	41	21%	23	21%	72	63%
Health professions	112	17	68	31	42	21	1	1	1	1
Business and management	69	11	31	14	24	12	10	9	4	4
Law	51	8	31	14	20	10	--	--	--	--
Public affairs and services	40	6	9	4	18	9	7	6	6	6
Engineering	29	4	--a	--a	14	7	14	13	--	--
Physical sciences	25	4	2	1	7	3	15	14	1	1
Social sciences	21	3	5	2	5	3	7	6	4	4
Psychology	19	3	3	2	3	1	3	3	10	9
Letters	19	3	6	3	4	2	5	5	4	3
Fine and applied arts	14	2	6	3	4	2	2	2	2	2
Biological sciences	12	2	1	1	2	1	5	5	4	3
Computer and information sciences	11	2	3	2	6	3	2	2	--a	--a
Mathematics	10	1	1	--a	2	1	5	5	2	1
Library science	7	1	--	--	5	2	--	--	2	2
Foreign languages	5	1	1	1	1	1	2	2	1	1
Communications	4	1	3	1	--	--	--a	--a	1	1
Agriculture and natural resources	4	1	--	--	--	--	4	3	--	--
Home economics	3	--a	--	--	--	--	3	2	--a	--a
Interdisciplinary studies	2	--a	--a	--a	--	--	2	2	--	--
Architecture and environmental design	1	--a	--	--	--	--	1	1	--	--
Area studies	--a	--a	--a	--a	--	--	--a	--a	--	--
Other	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a
Total ⁴	642	100	219	100	198	100	111	100	114	100

1. Graduate production includes master's at all institutions except Lock Haven, first professional (except medical) and doctor's at Pittsburgh and Temple and doctor's at Penn State.

2. HEGIS classifications are listed according to amount of total graduate student credit-hour production, from largest to smallest, for all institutions except Cheyney and Indiana University.

3. Data exclude Cheyney because HEGIS classification data were not submitted as of February 1, 1982 and Indiana University because of poor data.

4. Because of rounding, percentage totals may not equal 100.

a. Rounds to less than 1,000 student credit hours.

SOURCE: Reports provided by the individual institutions, 1981.

As shown in table 9, the leading fields of bachelor's degree production at the State-related universities are business and management (17 percent) and engineering (14 percent). The leading areas at the State-owned schools are education (34 percent) and business and management (17 percent). The State-related universities confer 8 percent of their bachelor's degrees in the social sciences while the State-owned institutions confer 11 percent in that area.

At the graduate level, the State-related universities conferred 27 percent of their degrees in education, 17 percent in the health professions, 10 percent in business and management, 9 percent in public affairs and services and 8 percent in law. These five areas accounted for about 70 percent of their total graduate degree production, although the percentages in these areas varied widely among the schools (appendix table 4A). The State-owned schools conferred 64 percent of their graduate degrees in education and 5 percent in the next highest category, social sciences.

Appendix table 5A gives the percentage of total degrees awarded in each HEGIS category in 1978-79 by the Pennsylvania State-related and State-owned institutions and by all institutions nationally at the undergraduate and graduate levels. There is considerable similarity between the State and national percentages for 1978-79, with the greatest exception at the undergraduate level in the area of education, in which Pennsylvania conferred

Table 9

NUMBER OF DEGREES CONFERRED BY MAJOR FIELD OF STUDY AND PERCENTAGE DISTRIBUTION OF ALL DEGREES GRANTED
BY LEVEL AND FIELD OF STUDY
1979-80

Field of study ¹	All institutions				State-related institutions				State-owned institutions			
	Bachelor's		Graduate		Bachelor's		Graduate		Bachelor's		Graduate	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Education	5,694	20%	3,394	37%	1,443	9%	1,857	27%	4,251	34%	1,537	64%
Business and management	4,813	17	822	9	2,654	17	715	10	2,159	17	107	4
Social sciences	2,645	9	293	3	1,274	8	180	3	1,371	11	113	5
Engineering	2,115	8	391	4	2,082	14	391	6	33	--a	--	--
Public affairs and services	1,835	7	692	7	954	6	608	9	881	7	84	4
Health professions	1,560	6	1,220	13	1,016	7	1,162	17	544	4	58	2
Letters	1,179	4	250	3	711	5	166	2	468	4	84	4
Biological sciences	1,118	4	257	3	690	5	171	2	428	3	86	4
Psychology	1,114	4	200	2	586	4	133	2	528	4	67	3
Communications	919	3	63	1	631	4	17	--a	288	2	46	2
Fine and applied arts	807	3	185	2	376	2	150	2	431	3	35	1
Physical sciences	800	3	249	3	549	4	202	3	251	2	47	2
Agriculture and natural resources	761	3	73	1	761	5	73	1	--	--	--	--
Home economics	731	3	39	--a	444	3	39	1	287	2	--	--
Interdisciplinary studies	565	2	76	1	431	3	59	1	134	1	17	1
Computer and information sciences	477	2	112	1	280	2	112	2	197	2	--	--
Mathematics	323	1	88	1	120	1	47	1	203	2	41	2
Foreign languages	313	1	80	1	160	1	55	1	153	1	25	1
Architecture and environmental design	118	--a	29	--a	108	1	29	--a	10	--a	--	--
Library science	29	--a	174	2	--	--	134	2	29	--a	40	2
Area studies	25	--a	5	--a	20	--a	5	--a	5	--a	--	--
Law	--	--	543	6	--	--	543	8	--	--	--	--
Total ²	27,941	100	9,235	100	15,290	100	6,848	100	12,651	100	2,387	100

1. Listed by total number of undergraduate degrees.

2. Because of rounding, totals may not equal 100.

a. Rounds to less than 1 percent.

NOTE: The graduate level for Penn State, Pittsburgh, Temple and Indiana University also includes first professional and/or doctor's degrees. The health professions category includes M.D. degrees at the first professional level.

SOURCE: Pennsylvania Department of Education, Division of Education Statistics, Our Colleges and Universities Today--Degrees and Other Formal Awards Conferred, vol. XVIII (1979-80), no. 2, table 4.

23 percent of its degrees as compared with 14 percent nationally. In 1979-80 Pennsylvania's percentage of bachelor's degrees in education dropped to 20 percent. At the same level, the U.S. institutions as a whole conferred proportionately more degrees in business and management. At the graduate level--where the proportions in education are close--the Pennsylvania schools conferred a significantly lower percentage of degrees in business and management and significantly higher percentages in the health professions and law.

II. FACULTY SALARY COST

POLICY IMPLICATIONS OF COST EVALUATION

In this era of sharply rising costs and changing student demand for the various academic programs, it is necessary for administrators to continuously and precisely evaluate program offerings, class scheduling and faculty complements in light of cost and demand. This chapter presents measures of each institution's cost efficiency by level and HEGIS classification and analyzes the significance of various factors affecting instructional cost. The relationship of the Commonwealth's appropriation to the instructional output of each school is also reviewed.

In a review such as this, questions invariably arise concerning whether differences in cost among institutions can be related to, and therefore justified by, differences in educational clientele and excellence. A report issued by the Carnegie Council on Policy Studies in Higher Education explores this issue:

First, it is sometimes argued that the higher educational system, since it is called upon to serve widely varied clienteles, must be diverse. Substantial cost differences are therefore held to be legitimate and even necessary. The widely acknowledged need for diversity does not, however, explain why

institutions serving the same or very similar clienteles--for example, selective liberal arts colleges or large state colleges--should exhibit such disparate costs per student. . . .

. . . it is argued that diversity leading to cost differences among colleges and universities is essential to intellectual and cultural excellence. It is held that there is not enough money or talent to produce such excellence in every institution and that if all institutions were to subsist at the same level of cost per student, the result would be widely diffused mediocrity. The only feasible alternative, it is said, is to concentrate exceptionally talented students and faculty and abundant resources in a few institutions and thus to achieve a few peaks of excellence even at the cost of financial and educational poverty elsewhere. But even accepting the importance of special peaks of excellence there is no explanation of the fact that institutions that could be said to have reached the highest peaks of excellence operate at widely different costs per student.⁶

Having concluded that there is no strong relationship between cost and educational equality or clientele, the report stresses the importance of heeding cost evaluation results in educational policymaking:

This apparent randomness [in cost differences among institutions] is tolerated in part because of a sincere belief that colleges and universities should enjoy freedom of thought and inquiry and therefore should be semiautonomous entities. It is also tolerated because no one knows with

6. Howard R. Bowen, The Costs of Higher Education: How Much Do Colleges and Universities Spend per Student and How Much Should They Spend? (Jossey-Bass, Inc., San Francisco: 1980), p. 128.

any certainty the relationship between money spent and true educational outcomes and it is perhaps desirable not to have all the educational eggs in one basket. However, many taxpayers, legislators, and donors suspect that wide variance in costs does not necessarily produce correspondingly varying results. The current concern of legislators and donors for cost analysis and accountability is an indication of the uneasiness with which public leaders view this situation and suggests the need for educators to give close attention to evaluation of results.⁷

INSTRUCTIONAL SALARY COST PER STUDENT CREDIT HOUR

The relative costs of instructional faculty salaries can be most easily and understandably gauged by the cost per student credit hour, the basic unit of faculty output. Since each level of instruction has its peculiar salary and output characteristics, this analysis details each level separately. The salary cost per student credit hour has been determined by dividing the portion of all faculty salary attributable solely to instruction at each level by the corresponding student credit-hour output.

Cost by Level

Table 10 details for each school the instructional faculty salary cost per student credit hour by level along with the instructional salary cost per full-time equivalent undergraduate and graduate

7. Ibid., p. 129.

Table 10

1980-81 INSTRUCTIONAL FACULTY SALARY COST
PER FULL-TIME EQUIVALENT STUDENT AND STUDENT CREDIT HOUR PRODUCED

Institution ¹	Instructional faculty salary cost per full-time equivalent student ²		Instructional faculty salary cost per student credit hour ³				
	Undergraduate	Master's	Undergraduate			Graduate	
			Total	Lower division	Upper division	Master's	Doctor's
State-related							
Penn State	\$881	\$2,105	\$29	\$22	\$43	\$88	\$242
Pittsburgh	961	2,290	32	23	48	95	179
Temple	1,259	2,117	42	35	50	88	107
Lincoln	1,366	1,140	46	38	78	48	n.a.
State-owned							
Indiana	p.d.	p.d.	p.d.	p.d.	p.d.	p.d.	p.d.
West Chester	1,284	2,220	43	34	63	93	--
Bloomsburg	1,222	1,607	41	36	49	67	--
Millersville	1,232	1,589	41	35	66	66	--
Edinboro	1,458	2,304	49	41	66	96	--
Shippensburg	1,235	1,930	41	37	52	80	--
Slippery Rock	1,278	2,497	43	36	60	104	--
Clarion	1,248	3,255	42	36	56	136	--
Kutztown	1,423	1,905	47	34	75	79	--
California	1,613	2,566	54	47	72	107	--
East Stroudsburg	1,288	1,258	43	34	62	52	--
Lock Haven	1,499	n.a.	50	43	79	n.a.	--
Mansfield	1,581	1,648	53	39	88	69	--
Cheyney	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	--

1. Listed from largest to smallest in full-time equivalent students for 1980-81.

2. Full-time equivalent students are calculated by dividing undergraduate student credit hours by 30 and graduate student credit hours by 24.

3. The instructional faculty salary cost per student credit hour for each level was calculated as follows: the instructional salary for each rank was assigned by level according to the percentage distribution of the course (assigned) credits within each rank. The salary determined by this method for each rank was summed by level and divided by the total student credit-hour production at that level. In the case of individual instruction, most institutions did not report the applicable course credits. Therefore, one course credit was attributed to every three student credit hours produced in individual instruction.

n.a. Not applicable.

n.d. Incomplete salary data.

p.d. Poor data.

SOURCE: Reports provided by the individual institutions, 1981.

student. With a few exceptions, the costs stairstep upward by level at each institution and in a number of cases the ascent is very steep. For example, Penn State's instructional salary cost per doctoral credit hour (\$242) is 11 times greater than its lower-division cost (\$22).

For all institutions reporting comparable data, the ratio of salary costs at the various levels to lower-division costs are as follows:

	<u>State- related</u>	<u>State- owned</u>
Lower division	1.0	1.0
Upper division	1.9	1.7
Master's	2.7	2.3
Doctor's	6.6	--

At the undergraduate level, economies of scale are apparent in the lower and upper divisions. The instructional salary cost for a full-time undergraduate student earning 30 credits is about \$880 at Penn State, \$1,280 at West Chester and \$1,580 at Mansfield. The instructional salary cost for a three-credit upper-division course is about \$140 at Pittsburgh, \$200 at Millersville and \$240 at Lock Haven.

Table 11 ranks the institutions according to cost efficiency for all undergraduate instruction. Several schools with differing ranks show the same costs because differences are obscured by rounding to dollars. Of the 16 institutions that submitted comparable

Table 11

1980-81 UNDERGRADUATE INSTRUCTIONAL SALARY COST PER UNDERGRADUATE STUDENT CREDIT HOUR
FOR ALL INSTRUCTION AND SELECTED HEGIS CLASSIFICATION BY INSTITUTION¹

HEGIS classification	(1) Penn State	(2) Pittsburgh	(3) Bloomsburg	(4) Millersville	(5) Shippensburg	(6) Clarion	(7) Temple	(8) Slippery Rock	(9) West Chester	(10) East Stroudsburg	(11) Lincoln	(12) Kutztown	(13) Edinboro	(14) Lock Haven	(15) Mansfield	(16) California	(17) Indiana	(18) Cheyney
All instruction ²	\$29	\$32	\$41	\$41	\$41	\$42	\$42	\$43	\$43	\$43	\$46	\$47	\$49	\$50	\$53	\$54	p.d.	n.d.
Social sciences	24	30	37	38	36	38	41	36	30	29	48	38	42	38	44	55	--	--
Letters	26	36	39	35	48	46	40	39	46	39	46	49	45	50	49	58	--	--
Education	42	45	46	51	54	47	46	50	52	52	33	62	57	55	73	65	--	--
Business and management	22	26	29	23	32	25	33	29	27	24	32	26	25	--	--	23	--	--
Mathematics	21	23	34	32	32	41	37	31	30	35	42	47	37	41	38	35	--	--
Physical sciences	25	25	62	36	63	81	43	55	42	42	65	67	63	73	87	78	--	--
Fine and applied arts	32	25	42	43	39	63	57	56	68	52	59	36	61	73	--	71	--	--
Psychology	21	19	31	34	35	32	42	38	32	27	64	36	33	36	42	41	--	--
Biological sciences	25	35	52	54	49	47	37	43	40	43	43	45	60	83	46	72	--	--
Foreign languages	33	47	74	59	67	77	57	69	45	75	63	68	72	66	56	83	--	--
Public affairs and services	49	44	--	60	50	--	34	37	32	52	--	--	--	--	24	--	--	--
Computer and information sciences	24	21	--	37	--	45	48	30	--	38	--	53	--	--	27	--	--	--
Health professions	42	71	77	47	--	--	82	45	81	102	--	143	80	--	--	--	--	--
Communications	33	23	--	67	45	42	29	--	--	105	--	36	--	--	--	--	--	--

1. Institutions are ranked and listed in order of cost efficiency for all instruction. HEGIS classifications are listed by amount of undergraduate student credit hours produced, from largest to smallest, for all institutions except Cheyney and Indiana University. The instructional faculty salary cost per student credit hour for each level was calculated as follows: the instructional salary for each rank was assigned by level according to the percentage distribution of the course (assigned) credits within each rank. The salary determined by this method for each rank was summed by level and divided by the total student credit-hour production at that level. In the case of individual instruction, most institutions did not report the applicable course credits. Therefore, one course credit was attributed to every three student credit hours produced in individual instruction.

2. Includes all HEGIS classifications.

n.d. No data submitted by HEGIS classifications and incomplete salary data.

p.d. Poor data.

SOURCE: Reports provided by the individual institutions, 1981.

data, Penn State, with a credit-hour cost of \$29, is the most cost efficient at the undergraduate level and California, with a cost of \$54, is the least. The median cost is \$43. Eight schools have costs ranging from \$41 to \$43.

Temple--which ranks seventh in table 11--has a high cost per undergraduate student credit hour in comparison with the other large universities. While Temple's undergraduate output is more than three times Clarion's (see table 1, p. 16), its undergraduate credit-hour cost is the same, \$42. However, Temple has the highest proportion of undergraduate instruction at the upper-division level of any of the schools, which would weigh its cost upward. Temple is fourth in upper-division cost efficiency.

At the master's level, the relationship between institutional size and salary cost per credit hour for all instruction is far less apparent than at the undergraduate level. A number of the State-owned colleges have lower costs per master's student credit hour than the large universities. The program concentrations in graduate instruction at the large State-related universities, however, are far different from those at the State-owned institutions (see table 8, p. 35). At the master's level in education, where all institutions have relatively large proportions of output, Penn State's and Pittsburgh's costs per credit hour--\$61 and \$55, respectively--are lower than 7 of the 11 State-owned institutions for which data are shown in appendix table 6A. Temple's cost (\$90) in this area, is exceeded

only by those at Clarion (\$118) and Slippery Rock (\$94). For the two groups, the master's instructional salary cost per credit hour in education is \$69 at the State-owned schools and \$74 at the State-related (table 12).

As shown in appendix table 6A, p. 79, Clarion has the highest master's level costs for all instruction (\$136) per student credit hour. Of the State-owned schools, East Stroudsburg is the most cost efficient (\$52 per student credit hour) at the master's level. Lincoln's cost is the lowest of all institutions (\$48).

Cost by HEGIS Classification

Undergraduate costs for selected HEGIS classifications are given in table 11 and costs at all levels appear in appendix table 6A. Table 12 breaks out costs by selected HEGIS classification--listed in the order of volume of total output at the undergraduate level, from largest to smallest--for the State-related and State-owned schools as groups.

As shown in table 12, at the State-related institutions the health professions are relatively expensive at all levels. While their average upper-division instructional faculty salary cost per student credit hour for all instruction is \$46, Pittsburgh and Temple have health professions costs of over \$81 and \$85, respectively, at this level (appendix table 6A). Pittsburgh's master's level cost is particularly high (\$228) as compared with its \$95 cost per credit hour for all master's level instruction.

Table 12

1980-81 AVERAGE INSTRUCTIONAL SALARY COST PER STUDENT CREDIT HOUR
FOR ALL INSTRUCTION AND SELECTED HEGIS CLASSIFICATION BY LEVEL

HEGIS classification ¹	State-related					State-owned ²			
	Undergraduate			Master's	Doctor's	Undergraduate			Master's
	Total under- graduate	Lower division	Upper division			Total under- graduate	Lower division	Upper division	
All instruction ³	\$33	\$25	\$46	\$90	\$211	\$45	\$37	\$63	\$85
Social sciences	29	21	47	124	243	38	32	59	134
Letters	32	27	45	125	221	45	41	72	130
Education	44	27	63	74	137	55	43	65	69
Business and management	27	20	31	49	245	27	24	31	54
Mathematics	24	20	56	83	263	35	32	74	140
Physical sciences	27	23	45	150	250	55	45	137	205
Fine and applied arts	37	25	57	135	213	56	45	104	235
Psychology	25	16	46	126	222	34	29	50	69
Biological sciences	28	23	38	177	253	51	40	92	175
Foreign languages	41	33	74	151	171	64	58	108	143
Public affairs and services	45	28	50	71	148	37	26	49	98
Computer and information sciences	27	23	33	49	221	35	30	58	454
Health professions	67	37	76	217	470	70	52	78	85
Communications	30	22	35	118	183	43	34	54	115

1. HEGIS classifications are listed by amount of undergraduate student credit hours produced, from largest to smallest, for all institutions except Cheney and Indiana University.

2. Data exclude Cheney and Indiana University.

3. Includes all HEGIS classifications.

SOURCE: Reports provided by the individual institutions, 1981.

Foreign languages are expensive at both the State-related and State-owned institutions. The overall upper-division cost in this area is \$108 at the State-owned schools, with nine having credit-hour costs of \$137 or more. The physical sciences have the highest overall upper-division cost (\$137) for all State-owned schools. Another expensive category at the upper-division and master's levels at the State-owned institutions is fine and applied arts with an upper-division cost of \$104 and a master's cost of \$235.

It should be noted that while appendix table 6A shows some salary costs at the upper-division and master's levels of the individual State-owned schools which are hundreds of dollars above their costs for all instruction, comparison with output data in appendix table 3A reveals that these widely variant costs in almost all cases apply to an extremely small number of student credit hours.

CLASS SIZE AND COST

Factors which influence the instructional faculty salary costs per student credit hour at each level include the number of courses and sections scheduled in relation to credit-hour output (i.e., class size in classroom instruction), the proportion of output in individual instruction, time spent by the faculty in classroom contact and the salary levels of instructional faculty assigned to the various programs and levels of instruction. Over the years the Joint State Government Commission staff has tested

through quantitative analysis the relative strength of variables influencing cost and found that class size is the most significant factor in explaining variations in cost per student credit hour.⁸

Increasing cost efficiency presents administrative challenges. For an institution to increase its average class size for all instruction, it must either increase its volume of student credit-hour output or schedule fewer classes. The latter involves dropping programs, courses or sections. When the number of classes is reduced, fewer instructional faculty members are needed if the average amount of time spent in the classroom by each faculty member is kept constant or increased.

Classroom Class Size

Size by Level--Table 13 presents average class sizes by level for the 1979-80 and 1980-81 academic years. The 1980-81 average class sizes in undergraduate classroom instruction for the 15 schools which reported comparable data range from 16 at Lincoln to 31 at Penn State. Clarion, which realized a 16 percent increase in undergraduate classroom class size over 1979-80, has the largest average undergraduate class size (29) of the State-owned institutions. Increases of more than 10 percent were also reported by Edinboro, Slippery Rock, East Stroudsburg and Mansfield.

8. Joint State Government Commission, Faculty Output and Salary Costs of State-Related and State-Owned Colleges and Universities (March 1978), pp. 41-42.

Table 13

AVERAGE CLASS SIZE IN CLASSROOM INSTRUCTION BY LEVEL¹
ACADEMIC YEARS 1979-80 and 1980-81

Institution ²	Total undergraduate			Undergraduate Lower division			Upper division			Master's		
	1979-80	1980-81	Percentage	1979-80	1980-81	Percentage	1979-80	1980-81	Percentage	1979-80	1980-81	Percentage
			change			change			change			change
State-related												
Penn State	30	31	3%	31	32	3%	27	29	7%	13	14	8%
Pittsburgh	28	29	4	31	31	0	23	25	9	17	17	0
Temple	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a
Lincoln	18	16	-11	22	20	-9	12	9	-25	18	14	-22
State-owned												
Indiana	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a
West Chester	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a
Bloomsburg	24	24	0	28	28	0	19	20	5	13	11	-15
Millersville	25	24	-4	29	29	0	17	15	-12	13	11	-15
Edinboro	19	21	11	23	24	4	14	16	14	8	8	0
Shippensburg	--a	27	--a	--a	28	--a	--a	22	--a	--a	12	--a
Slippery Rock	22	25	14	28	29	4	14	17	21	10	10	0
Clarion	25	29	16	29	34	17	17	21	24	8	9	12
Kutztown	22	24	9	30	33	10	14	15	7	12	13	8
California	20	20	0	22	23	5	16	15	-6	9	9	0
East Stroudsburg	23	26	13	32	32	0	14	19	36	10	14	40
Lock Haven	23	24	4	26	28	8	15	16	7	n.a.	n.a.	n.a.
Mansfield	18	20	11	24	27	13	11	12	9	12	14	17
Cheyney	18	18	0	23	23	0	12	11	-8	6	6	0

1. Average classroom class size for each level is calculated by dividing the total classroom student credit hours by the total classroom assigned credits.

2. Listed from largest to smallest in full-time equivalent students for 1980-81.

a. Noncomparable data reported.

n.a. Not applicable.

SOURCE: Reports provided by the individual institutions, 1980 and 1981.

At the lower-division level, two State-owned colleges--Clarion and Kutztown--have larger 1980-81 average classroom class sizes (34 and 33, respectively) than Penn State or Pittsburgh and East Stroudsburg has an average class size equal to that at Penn State (32).

At the upper-division level, on the other hand, the 1980-81 average class sizes at Penn State and Pittsburgh (29 and 25, respectively) do not vary as greatly from the lower-division level as those of the State-owned schools, where the upper-division classes are generally from 30 percent to more than 50 percent smaller. Shippensburg's average upper-division class size (22) shows less variance from the lower-division than those of the other State-owned schools and is the largest of that group. Lincoln has the smallest upper-division class size of all institutions (9).

Only Lincoln reported a decrease in lower-division class size from 1979-80, while Lincoln, Millersville, California and Cheyney reported decreases at the upper-division level. These four reported average upper-division class sizes of 15 or fewer for 1980-81.

At the master's level the classroom class sizes are all small. Pittsburgh reported the largest average master's classroom class size (17) for 1980-81 and Cheyney the smallest (6). East Stroudsburg's average master's classroom class size (14) increased by 40 percent over 1979-80. Lincoln's, Bloomsburg's and Millersville's declined.

Class size data reported by Temple, Indiana and West Chester included individual instruction and, therefore, were not comparable with those of the other institutions.

Size by HEGIS Classification--Average class sizes at the upper division are singled out for special scrutiny because small class sizes at this level have a strong influence on an institution's cost efficiency. Average upper-division classroom class sizes by HEGIS classification for 1979-80 and 1980-81 are shown in appendix table 7A, p. 80, and for 1980-81 in table 14.

Business and management classroom class sizes at this level are among the largest at 11 of the 13 institutions for which data were available. Class sizes in this HEGIS category range from 41 at Penn State to 17 at Lincoln. Class sizes in foreign languages are among the smallest at 9 of the schools--ranging from 14 at Penn State to 3 at California.

The smallest average upper-division classroom class size in table 14 is in fine and applied arts at California, with an average of 2. Only Pittsburgh has a relatively high average (28) in this area.

Considering the fact that the largest upper-division HEGIS-category output is in education, it is interesting to find that education class sizes are below the overall average at 9 of 14 schools. Physical science class sizes are below the overall average at all institutions except Pittsburgh and California.

Table 14

1980-81 UPPER-DIVISION AVERAGE CLASSROOM CLASS SIZE AND UPPER-DIVISION AVERAGE INSTRUCTIONAL SALARY COST PER STUDENT CREDIT HOUR BY SELECTED HEGIS CLASSIFICATION¹

HEGIS classification ²	(1) Penn State	(2) Pittsburgh	(3) Bloomsburg	(4) Temple	(5) Shippensburg	(6) Clarion	(7) Slippery Rock	(8) East Stroudsburg	(9) West Chester	(10) Edinboro	(11) Millersville	(12) California	(13) Kutztown	(14) Lincoln	(15) Lock Haven	(16) Mansfield	(17) Indiana	(18) Cheyney
All instruction ²																		
Salary cost	\$45	\$48	\$49	\$50	\$52	\$56	\$60	\$62	\$63	\$66	\$66	\$72	\$75	\$78	\$79	\$88	p.d.	n.d.
Classroom size	29	25	20	--a	22	21	17	19	--a	16	15	15	15	9	16	12	p.d.	11
Education																		
Salary cost	72	59	52	53	50	61	53	61	67	65	63	74	72	62	70	102	--	--
Classroom size	17	19	18	--a	27	19	21	18	--a	15	16	14	14	11	17	10	--	--
Business and management																		
Salary cost	28	27	30	37	38	58	30	28	30	26	28	33	37	36	--	--	--	--
Classroom size	41	26	35	--a	30	38	32	32	32	32	27	29	25	17	--	--	--	--
Social sciences																		
Salary cost	41	51	53	50	65	88	69	43	43	57	77	70	68	71	71	65	--	--
Classroom size	30	20	21	--a	19	14	13	28	--a	22	16	15	16	10	15	15	--	--
Letters																		
Salary cost	37	55	60	50	87	102	66	57	88	59	51	90	87	91	103	73	--	--
Classroom size	24	14	18	--a	15	11	15	19	--a	21	20	11	15	9	13	15	--	--
Fine and applied arts																		
Salary cost	73	31	60	69	82	173	229	93	120	103	76	212	118	59	75	--	--	--
Classroom size	18	28	9	--a	13	8	4	14	--a	8	13	2	10	13	20	--	--	--
Public affairs and services																		
Salary cost	58	46	--	37	55	--	52	68	45	--	62	--	--	--	--	23	--	--
Classroom size	31	23	--	--a	17	--	13	14	--a	--	14	--	--	--	--	25	--	--
Health professions																		
Salary cost	49	81	82	85	--	--	55	109	88	80	47	--	143	--	--	--	--	--
Classroom size	17	--a	12	--a	--	--	16	12	--a	21	16	--	8	--	--	--	--	--
Psychology																		
Salary cost	40	42	61	58	51	45	74	53	44	41	45	43	59	108	60	62	--	--
Classroom size	25	28	17	--a	23	37	16	21	--a	31	22	27	19	8	17	19	--	--
Physical sciences																		
Salary cost	36	56	135	60	159	203	124	122	96	104	150	79	223	215	359	282	--	--
Classroom size	27	26	10	--a	10	9	13	14	--a	14	7	20	12	3	6	7	--	--
Biological sciences																		
Salary cost	33	44	83	53	97	83	90	91	60	141	79	110	94	113	233	115	--	--
Classroom size	42	36	16	--a	9	15	18	21	--a	9	17	15	25	8	9	14	--	--
Mathematics																		
Salary cost	60	50	90	53	45	112	92	62	65	88	65	86	95	244	68	107	--	--
Classroom size	19	17	14	--a	24	8	13	19	--a	13	18	12	13	3	18	11	--	--
Communications																		
Salary cost	35	23	--	37	51	60	--	--	--	--	100	--	147	--	--	--	--	--
Classroom size	29	24	--	--a	19	23	--	--	--	--	18	--	17	--	--	--	--	--
Computer and information sciences																		
Salary cost	28	26	--	50	--	273	73	59	--	--	56	--	86	--	--	35	--	--
Classroom size	44	32	--	--a	--	7	12	24	--	--	19	--	12	--	--	26	--	--
Foreign languages																		
Salary cost	73	86	325	65	144	137	143	157	68	94	77	356	153	125	257	197	--	--
Classroom size	14	9	4	--a	8	7	7	7	--a	12	13	3	7	4	6	5	--	--

1. Institutions are ranked and listed in order of cost efficiency for all upper-division instruction. HEGIS classifications are listed according to amount of upper-division student credit-hour production, from largest to smallest, for all institutions except Cheyney and Indiana University. The instructional faculty salary cost per student credit hour for each level was calculated as follows: the instructional salary for each rank was assigned by level according to the percentage distribution of the course (assigned) credits within each rank. The salary determined by this method for each rank was summed by level and divided by the total student credit-hour production at that level. In the case of individual instruction, most institutions did not report the applicable course credits. Therefore, one course credit was attributed to every three student credit hours produced in individual instruction. Average upper-division class size is calculated by dividing the academic-year upper-division classroom student credit hours by the academic-year classroom assigned credits. Individual instruction is not included.

2. Includes all HEGIS classifications.

a. Noncomparable data reported.

n.d. No data submitted by HEGIS classifications and incomplete salary data.

p.d. Poor data.

SOURCE: Reports provided by the individual institutions, 1981.

Quantitative Analysis

The considerable impact of classroom class size on instructional faculty salary cost per student credit hour was verified by means of a linear regression equation based on 129 observations in 14 HEGIS classifications at 11 of the 14 State-owned institutions for which complete data are available. These data for upper-division instruction are shown in table 14.

Since individual instruction is thought to have a significant effect on cost, the percentage of upper-division credit-hour output in individual instruction for each of the 14 HEGIS classifications at the 11 colleges was also entered in the calculation. Individual instruction data by HEGIS classification are shown in appendix table 8A, p. 81, and for all instruction in table 15.

The calculated equation (standard errors shown in parentheses) is:

$$y = \$183 - \$5.81x_1 + \$1.79x_2 \quad R^2 = .526$$

(45) (.55) (.64)

Where:

y = upper-division instructional faculty
salary cost per student credit hour;

x_1 = average upper-division classroom class
size; and

Table 15

1980-81 STUDENT CREDIT HOURS IN INDIVIDUAL INSTRUCTION
AND PERCENTAGE DISTRIBUTION OF TOTAL PRODUCTION BY LEVEL¹
(Credit hours in 000s)

Institution ²	Total credit hours in individual instruction	Percentage of total production	Total undergraduate credit hours in individual instruction	Percentage of total undergraduate production	Total graduate credit hours in individual instruction ³	Percentage of total graduate production
State-related						
Penn State	82.9	5%	33.1	2%	49.8	45%
Pittsburgh	55.8	7	18.2	3	37.6	19
Temple	27.6	4	14.2	3	13.4	6
Lincoln	.2	1	.2	1	0	0
Total	166.5	5	65.7	2	100.8	19
State-owned						
Indiana	p.d.	p.d.	p.d.	p.d.	p.d.	p.d.
West Chester	1.5	1	1.0	--a	.5	3
Bloomsburg	.7	--a	.6	--a	.1	1
Millersville	.6	--a	.3	--a	.3	2
Edinboro	2.2	1	2.0	1	.2	2
Shippensburg	3.1	2	2.7	2	.4	3
Slippery Rock	.4	--a	.3	--a	.1	2
Clarion	1.2	1	1.0	1	.2	3
Kutztown	1.3	1	1.1	1	.2	4
California	0	0	0	0	0	0
East Stroudsburg	1.5	1	1.3	1	.2	2
Lock Haven	.4	1	.4	1	n.a.	n.a.
Mansfield	.1	--a	.1	--a	--a	1
Cheyney	.3	--a	.2	--a	.1	4
Total ⁴	13.3	1	11.0	1	2.3	2
All institutions ⁴	179.8	4	76.7	2	103.1	16

1. Individual instruction encompasses all instruction which, because of its nature, is not delivered in a group situation. This activity may include independent study research (both thesis and nonthesis), internship or field work, teaching or clinical practicum and individual instruction in the fine arts.

2. Listed from largest to smallest in full-time equivalent students for 1980-81.

3. The graduate level for Penn State, Pittsburgh, Temple, Lincoln and Indiana University includes master's and/or first professional (excluding medical) and doctoral student credit hours.

4. Totals do not include Indiana University.

a. Rounds to less than 100 student credit hours or less than 1 percent of total production at given level.

n.a. Not applicable.

p.d. Poor data.

SOURCE: Student credit-hour reports provided by the individual institutions, 1981.

X_2 = percentage of upper-division credit-hour
production in individual instruction.

The measure of variance, R^2 , indicates that about 52 percent of the variation in salary cost per student credit hour is explained by variation in class size and in the proportions of individual instruction.

The regression equation shows an estimated savings of about \$6 in cost per upper-division student credit hour if the average classroom class size at the 11 State-owned institutions is increased by one student and an additional cost of about \$2 for each percentage increase in individual instruction output at the upper division.

The high percentages of individual instruction at the larger State-related universities stand out in table 15. Individual instruction is particularly high at the upper-division level in education (appendix table 8A) due to practice teaching. At the graduate level, the highest volumes are also recorded in education as well as in the physical, biological and social sciences.

Courses Taught per Term

The smaller institutions have a problem offering diversified academic programs while maintaining cost-efficient class sizes and the larger institutions, as class-size data reveal, take far less than full advantage of the economics of scale by

scheduling numerous courses and sections. Table 16 presents the average number of courses taught per term in the 1980-81 academic year, the average student credit-hour output per course and the percentage change from 1979-80. Appendix table 9A, p. 82, shows the number of courses taught each year since 1977-78.

Reducing the number of courses taught does not increase class size and cut costs if the reductions are equalled or exceeded by additional sections in other courses. However, when student demand is heavily concentrated in a few program areas, it would be unwise to deny many students the opportunity to take basic required courses by refusal to schedule additional sections. Under such conditions, administrators would do well to closely examine the various areas of study, particularly those with higher costs per credit hour and low volumes, to determine whether course offerings should be pared further or some programs dropped altogether.

In evaluating the data in table 16 it is helpful to divide the credit-hour output per course by 3, the typical course credit assignment, to provide a rough estimate of the average number of students taking each course. At the master's level the amount of credit-hour output per course is small at all institutions. All but 1 of the 11 State-owned colleges with comparable data produce 40 or fewer student credit hours per course. Cheyney has the lowest output (17 credit hours) per master's course.

Table 16

AVERAGE STUDENT CREDIT-HOUR PRODUCTION PER COURSE
TAUGHT¹ DURING EACH TERM OF ACADEMIC YEAR 1980-81
PERCENTAGE CHANGE FROM 1979-80

Institution ²	Undergraduate				Master's			
	Courses taught per term		Average student credit-hour production per course taught per term		Courses taught per term		Average student credit-hour production per course taught per term	
	Average number	Percentage change	Average number	Percentage change	Average number	Percentage change	Average number	Percentage change
State-related								
Penn State	1,751	3%	420	-a	299	-8%	72	11%
Pittsburgh	1,748	3	158	1%	961	1	47	-4
Temple	1,650	-2	148	2	b	b	b	b
Lincoln	170	-11	75	-8	18	50	128	-33
State-owned								
Indiana	831	p.d.	p.d.	p.d.	b	b	p.d.	p.d.
West Chester	872	2	117	-3	233	5	24	-6
Bloomsburg	520	1	156	-1	78	15	35	-22
Millersville	520	-8	135	13	79	-20	37	7
Edinboro	526	-a	134	2	86	-3	38	12
Shippensburg	391	-4	175	5	82	-5	47	-a
Slippery Rock	533	2	136	-2	79	-1	30	-14
Clarion	468	3	151	-5	73	7	24	2
Kutztown	b	b	b	b	b	b	b	b
California	492	-7	106	10	87	-8	34	21
East Stroudsburg	431	1	119	-3	40	0	40	-9
Lock Haven	310	3	118	4	n.a.	n.a.	n.a.	n.a.
Mansfield	421	3	77	-6	28	4	35	-17
Cheyney	321	-11	92	1	31	-11	17	-16

1. Average student credit hours per course are calculated by dividing the average production for each term in the academic year by the average number of courses taught each term in the academic year. Penn State data adjusted to two terms.

2. Listed from largest to smallest in full-time equivalent students for 1980-81.

a. Rounds to less than 1 percent.

b. Noncomparable data reported.

n.a. Not applicable.

p.d. Poor data.

SOURCE: Reports provided by the individual institutions, 1980 and 1981.

FACULTY WORKLOAD AND SALARY LEVELS

Workweek Activities

In the fall of each year all full-time faculty are required to complete questionnaires concerning the average amount of time spent each week in various activities. The results are summarized in table 17, and head-count data and contact hours for each year from 1977 to 1980 appear in appendix table 10A, p. 38.

The faculty at all institutions report total workweeks of 42 hours or more and 16 of the 18 report workweeks between 51 and 59 hours. Faculty at two schools, Lincoln and Mansfield, show significant decreases in total workweek with their greatest hourly decreases in instructional support.

Faculty at nine of the 17 institutions with comparable data report fewer average weekly hours in classroom contact hours in 1980-81 than in 1979-80. Faculty at California increased contact hours by 16 percent from 1979. The average contact hours for the State-related universities (10.1) is lower than for the State-owned schools (11.9). However, faculty at the three large universities spend a greater amount of time in graduate class instruction and those at Pittsburgh, in particular, and Temple also spend considerably more hours in research. The faculty at the State-owned colleges generally spend a greater amount of time in other university service than faculty at the State-related universities.

Table 17

1980-81 FULL-TIME FACULTY WORKWEEK ACTIVITIES
PERCENTAGE CHANGE FROM 1979-80

Institution ¹	Total full-time head count ²	Percent-age change	Average weekly hours per full-time faculty member ³											
			Contact hours				Instructional support	Percent-age change	Research	Percent-age change	Other university service	Percent-age change	Total work-week	Percent-age change
			Total	Percent-age change	Under-graduate	Graduate								
State-related														
Penn State	2,592	-1%	10.3	-1%	8.4	1.9	20.7	-2%	9.2	4%	12.1	1%	52.3	-a
Pittsburgh	1,532	-1	9.5	2	5.2	4.3	17.8	-1	14.0	-4	11.9	-1	53.2	-1%
Temple	1,231	-5	10.5	1	6.5	4.0	15.8	2	11.7	0	14.6	-a	52.6	1
Lincoln	78	-1	11.5	-3	10.2	1.3	14.5	-32	7.6	-2	9.3	101	42.9	-6
Total	5,433	-2	10.1	0	7.1	3.0	18.7	-1	11.1	-a	12.6	0	52.5	-a
State-owned														
Indiana	595	a	12.8	-1	11.8	1.0	19.4	-1	9.2	2	17.0	-4	58.4	-2
West Chester	452	-5	12.0	-5	10.9	1.1	18.0	5	8.7	1	19.2	4	57.9	2
Bloomsburg	311	a	11.8	-7	11.0	.8	17.1	1	7.0	-1	16.8	4	52.7	-a
Millersville	b	b	11.5	2	10.8	.7	16.3	-2	7.7	-1	17.0	a	52.5	-a
Edinboro	340	-10	12.3	-5	11.3	1.0	20.2	3	8.9	4	14.7	-2	56.1	-a
Shippensburg	298	1	10.2	-2	9.2	1.0	17.9	1	8.4	-6	16.0	2	52.5	-a
Slippery Rock	315	-5	13.5	b	12.8	.7	17.1	b	7.4	8	16.1	3	54.1	-a
Clarion	306	2	11.1	9	10.5	.6	17.2	9	6.7	-4	16.2	-7	51.2	2
Kutztown	296	1	12.2	-4	11.7	.5	16.3	1	8.1	-8	17.1	6	53.7	-a
California	285	-3	11.1	16	10.2	.9	16.2	-2	7.0	a	17.5	-1	51.8	2
East Stroudsburg	220	a	11.1	-4	10.5	.6	17.7	-5	9.7	17	18.7	-5	57.2	-2
Lock Haven	170	2	11.7	a	11.7	n.a.	17.8	7	7.4	5	17.4	a	54.3	3
Mansfield	162	-12	10.7	1	10.2	.5	15.1	-19	8.2	-5	11.1	-5	45.1	-9
Cheyney	174	-2	12.1	5	11.5	.6	17.6	10	9.3	5	18.8	-1	57.8	4
Total	b	b	11.9	b	11.1	.8	17.7	b	8.1	1	16.8	a	54.5	a
All institutions	b	b	10.9	b	8.8	2.1	18.2	b	9.8	a	14.4	a	53.3	-a

1. Listed from largest to smallest in full-time equivalent students for 1980-81.

2. Head count is the average of the total number of full-time employed faculty (instructional and noninstructional) for each term of the 1979-80 academic year; the head count for 1980-81 is as reported by each school except for Pittsburgh where data was reported by terms and an average was calculated as for 1979-80.

3. Average calculated using only those full-time employed faculty in the fall who reported a complete workweek. For all schools except Cheyney this represents at least 90 percent of full-time faculty each year; at Cheyney, 60 percent reported in 1980-81 and 77 percent in 1979-80.

a. Rounds to less than 1 percent.

b. Noncomparable data reported.

n.a. Not applicable.

SOURCE: Reports provided by the individual institutions, 1980 and 1981.

Salaries

To provide an in-depth picture of faculty salary levels in Pennsylvania and elsewhere, two sets of data are used in this analysis. Table 18 presents the 1980-81 salary data reported under the Snyder amendments for full-time equivalent instructional faculty. The equivalents are calculated on the basis of the time spent in instruction by all staff members--full- and part-time, ranked and unranked--during the full year. One full-time equivalent faculty represents one full-time instructional workload for two terms (one academic year). Table 19, displaying data reported to the National Center for Education Statistics and appearing in Academe,⁹ includes average main campus academic year salaries of full-time ranked faculty whose major assignment is instruction.

Full-Time Equivalent Instructional Faculty--In reviewing table 18, one is immediately struck by the higher average instructional salaries at the State-owned institutions, particularly the smaller ones. The overall average salary for the State-owned institutions with comparable data is \$24,800 as compared with \$21,000 for the State-related universities. The principal reason for the difference is the greater use of instructors and lower-salaried nonranked faculty by the State-related universities.

9. "The Rocky Road Through the 1980s: Annual Report on the Economic Status of the Profession, 1980-81," Academe 67, Bulletin of the American Association of University Professors (Washington, D.C.: August 1981), pp. 242-280.

Table 18

1980-81 AVERAGE SALARY OF FULL-TIME EQUIVALENT INSTRUCTIONAL FACULTY AND PERCENTAGE DISTRIBUTION BY RANK¹
(Dollar amounts in 000s)

Institution ²	FTE instructional faculty	Percentage change 1979-80 to 1980-81	Average instructional salary		Professor		Associate professor		Assistant professor		Instructor		Nonranked ³	
			Amount	Percentage increase	Average salary	Percentage of faculty	Average salary	Percentage of faculty	Average salary	Percentage of faculty	Average salary	Percentage of faculty	Average salary	Percentage of faculty
State-related														
Penn State	3,035	-b	\$21.2	9%	\$32.1	16%	\$24.7	19%	\$19.0	28%	\$13.1	13%	\$17.7	24%
Pittsburgh	1,835	-1%	20.7	11	30.8	18	22.2	26	17.5	21	12.4	11	18.3	24
Temple	1,741	-6	21.3	10	33.6	26	24.9	23	17.9	21	10.3	14	10.3	16
Lincoln	95	a	17.3	a	22.7	16	19.0	19	16.7	35	14.2	20	13.5	10
Total ⁴	6,706	a	21.0	9	32.2	19	23.9	22	18.4	24	12.2	13	16.4	22
State-owned														
Indiana	651	1	24.0	7	28.6	38	23.2	34	19.4	23	15.8	5	18.6	b
West Chester	468	-1	24.0	6	29.4	29	24.4	39	19.8	23	15.0	9	25.7	b
Bloomsburg	335	-2	23.6	6	29.0	30	24.0	40	18.4	25	13.9	5	n.a.	0
Millersville	a	a	a	a	a	a	a	a	a	a	a	a	a	a
Edinboro	334	-9	25.3	6	29.4	37	24.8	36	20.5	25	19.1	2	23.9	b
Shippensburg	284	-2	25.0	6	30.0	37	24.5	33	20.2	26	16.5	4	23.8	b
Slippery Rock	295	-9	24.9	6	30.0	39	24.9	30	19.9	21	16.2	10	22.4	b
Clarion	288	2	24.4	7	30.1	31	24.3	37	20.2	22	15.2	10	30.1	b
Kutztown	265	-1	26.1	8	30.7	35	26.2	39	21.2	19	16.3	7	28.8	b
California	264	-6	26.8	8	30.4	43	25.3	42	20.7	13	16.9	1	27.4	1
East Stroudsburg	216	1	24.2	6	29.3	37	23.5	38	19.2	21	10.5	4	35.0	b
Lock Haven	146	-1	25.7	6	31.0	31	25.1	47	20.5	18	15.6	4	n.a.	0
Mansfield	154	-14	25.2	8	31.4	28	26.5	36	20.8	26	15.0	10	n.a.	0
Cheyney	163	-1	c	c	c	31	c	54	c	8	c	7	c	b
Total ⁵	3,700	a	24.8	7	29.7	35	24.5	37	19.9	22	15.4	6	26.1	b

1. Average salary is calculated by dividing the total instructional salary paid to all staff members in the respective rank categories by their total full-time equivalency in the instructional function. One full-time equivalent faculty represents one full-time workload for two terms (one academic year). The summer term is treated as one term or one-half the academic year. Data for each year include the summer term and the subsequent academic year.

2. Listed from largest to smallest in full-time equivalent students for 1980-81.

3. The full-time equivalency of nonranked faculty members includes the time spent in instruction of all nonranked personnel, including lecturers, administrators, librarians, research staff and graduate assistants.

4. Percentage increase of average instructional salary excludes Lincoln.

5. Totals for the State-owned institutions exclude Millersville and Cheyney.

a. Noncomparable data reported.

b. Rounds to less than 1 percent.

c. Incomplete salary data submitted.

n.a. Not applicable.

SOURCE: Salary reports provided by the individual institutions, 1980 and 1981.

At the State-owned institutions, 72 percent of the full-time equivalent instructional faculty are in the ranks of professor and associate professor and approximately 6 percent in the rank of instructor and nonranked. At the State-related universities, 41 percent are in the two top ranks and 35 percent are instructors and nonranked. The State-owned institutions as a group have higher average salaries in all categories, with the exception of professor, than the State-related universities.

The particularly high average salaries for nonranked faculty at the State-owned schools largely represent the instructional portion of salary of a very small number of higher paid administrators. The larger institutions achieve economy by using a large number of lower salaried nonranked lecturers and part-time personnel.

While Pittsburgh shows the largest increase in average salary for full-time equivalent faculty over 1979-80 (11 percent), its overall average salary of \$20,700 is the lowest of all institutions with comparable data except Lincoln. (See appendix table 11A, p. 84, for 1979-80 data.) The highest average salary incorporating all categories is at California (\$26,800). Temple has the highest average full-time equivalent salary for the rank of professor (\$33,600). The average salary for all instructional faculty increased by 9 percent over 1979-80 at the large

State-related universities and by 7 percent at the State-owned institutions--in both cases less than the rise of the Consumer Price Index of 11.6 percent.

Several institutions reported a significant reduction in their full-time equivalent instructional faculties from 1979-80 to 1980-81. Mansfield's was reduced by 14 percent, Edinboro's and Slippery Rock's by 9 percent and Temple's and California's by 6 percent.

Full-Time Ranked Faculty--The data in table 19 differ in several respects from those in table 18. The Academe average salaries for 1980-81 in table 19 are not for equivalencies but are calculated using the total salaries of full-time ranked faculty whose major assignment is instruction and who are employed during the academic year. Part-time, administrative, nonranked and summer faculty are omitted as are all faculty at branch campuses. Data are also shown for selected private institutions and for selected public institutions in nearby states. To facilitate comparison, Academe categorizes the institutions according to the level of the degrees granted as detailed in footnote 2 of the table.

In category I, of the selected public and private universities, only faculty at the University of Delaware and the University of Maryland receive lower average salaries for all ranks than those at the Pennsylvania universities.

Table 19
 AVERAGE INSTRUCTIONAL FACULTY SALARIES¹ BY CATEGORY² AND RANK
 PERCENTAGE OF FULL-TIME FACULTY IN EACH RANK
 MAIN CAMPUS OF SELECTED PUBLIC AND PRIVATE INSTITUTIONS
 ACADEMIC YEAR, 1980-81

Category	Institution	Average salary (000s)					Total ranked instructional faculty	Percentage of ranked faculty				
		Prof.	Assoc. prof.	Asst. prof.	Instr.	All ranks		Prof.	Assoc. prof.	Asst. prof.	Instr.	
I	State-related and State-owned											
	Penn State	\$34.9	\$26.5	\$20.8	\$16.0	\$26.7	1,385	35%	29%	25%	11%	
	Pittsburgh	36.0	26.0	20.0	14.5	26.9	1,241	32	35	27	6	
	Temple	34.3	25.8	20.5	16.0	26.5	1,341	35	32	24	9	
	Indiana	31.2	25.5	20.5	15.5	26.0	618	38	34	23	5	
	Private (Pennsylvania)											
	Carnegie-Mellon	35.0	23.8	20.5	15.8	27.4	412	42	25	30	3	
	Lehigh	32.4	23.8	19.7	16.7	27.1	325	50	29	19	2	
	University of Pennsylvania	38.3	27.8	22.4	n.a.	31.4	988	49	24	27	--a	
	Public (other states)											
	University of Delaware	35.9	24.9	19.1	16.2	25.2	743	29	38	29	4	
	University of Maryland	34.5	25.2	20.1	14.6	25.2	1,313	31	32	27	10	
	University of Michigan	36.9	27.1	21.0	16.1	31.0	1,674	55	22	21	2	
	Rutgers	40.1	27.9	19.5	15.5	28.1	1,368	35	27	31	7	
	SUNY - Stony Brook	35.8	25.1	17.8	15.1	27.7	601	43	31	25	1	
	Ohio State	34.9	26.0	21.8	17.1	28.3	1,855	42	29	24	5	
	IIA	State-related and State-owned										
Lincoln		24.8	19.7	16.6	13.5	18.6	67	24	24	36	16	
Bloomsburg		31.1	25.7	19.8	14.2	25.8	299	33	41	23	3	
California		31.2	26.0	21.0	--b	27.2	287	40	43	15	2	
Cheyney		31.3	25.8	21.3	17.5	26.3	181	32	48	11	9	
Clarion		31.5	25.7	20.7	16.5	26.2	248	36	40	16	8	
East Stroudsburg		31.9	25.8	20.9	--b	26.3	222	33	37	28	2	
Edinboro		31.3	25.8	21.2	16.6	26.5	344	37	36	25	2	
Kutztown		30.9	25.5	20.9	16.9	26.0	268	35	40	19	6	
Mansfield		31.6	26.1	20.1	14.6	25.6	164	30	40	23	7	
Millersville		31.3	25.6	20.5	16.8	25.7	301	30	42	22	6	
Shippensburg		31.2	26.7	21.1	16.9	26.6	271	38	33	26	3	
Slippery Rock		31.4	26.0	20.9	16.7	26.2	306	40	30	21	9	
West Chester		31.2	26.0	21.0	16.6	25.7	477	30	39	24	7	
Private (Pennsylvania)												
Bucknell		31.8	23.7	18.9	17.8	24.7	209	34	31	30	5	
Gannon		23.7	21.1	18.5	--b	20.3	96	23	28	44	5	
Villanova		31.3	23.7	19.5	14.9	22.9	416	21	31	39	9	
Public (other states)												
Towson State University (Maryland)		31.6	26.7	22.2	17.0	24.6	442	24	27	36	13	
Grand Valley State Colleges (Michigan)		28.9	23.7	19.0	n.a.	24.1	189	25	57	18	--a	
Glassboro State College (N.J.)		31.4	25.1	20.1	15.4	24.4	372	30	24	40	6	
CUNY - Hunter College		33.3	26.9	20.5	15.3	25.6	567	29	38	22	11	
Youngstown State University (Ohio)		29.9	25.0	20.1	15.3	23.9	434	29	35	22	14	
IIB		State-owned										
		Lock Haven	31.3	26.0	21.2	16.5	26.1	162	31	42	21	6
		Private (Pennsylvania)										
	Gettysburg	29.6	22.2	17.5	15.7	22.7	129	30	36	25	9	
	Moravian	25.7	19.8	17.0	n.a.	20.3	92	28	32	37	3	
	Washington & Jefferson	25.0	20.6	17.6	16.9	20.5	76	28	31	28	13	
	Public (other states)											
	Lake Superior State College (Michigan)	25.8	23.1	19.4	15.3	21.2	104	13	42	32	13	
Stockton State College (N.J.)	28.7	22.5	17.7	14.6	19.2	165	10	27	35	28		

1. All data in this table include only full-time ranked faculty whose major assignment is instruction--including those with release time for research--and excludes part-time and administrative faculty and faculty for preclinical and clinical medicine. Average salaries based on contracted salaries (adjusted to a standard academic year basis, when necessary), excluding summer teaching extra load, etc. Salaries rounded to nearest hundred dollars.

2. Institutions in category I offer the doctorate degree and in the most recent three years conferred an annual average of 15 or more earned doctorates in at least three nonrelated disciplines. Institutions in category IIA award degrees above the bachelor's degree but do not qualify for category I. Institutions in category IIB award only the bachelor's degree or equivalent.

a. Less than 1 percent.

b. Salary data not provided for ranks with five or fewer faculty members.

n.a. Not applicable.

SOURCE: "The Rocky Road through the 1980s: Annual Report on the Economic Status of the Profession, 1980-81," *Academe* 67, Bulletin of the American Association of University Professors (Washington, D.C.: August 1981), pp. 242-280. Data obtained from the National Center for Education Statistics and submitted by institutions on NCES Form 2300-3.

In category IIA, the State-owned colleges show considerably higher average salaries for all ranks than the public and private institutions listed. Of the selected institutions, only CUNY - Hunter, which is located in Manhattan, has an average salary above \$25,000. All of Pennsylvania's State-owned colleges have average salaries above this level and 8 have average salaries of \$26,000 or above.

In category IIB, of the selected colleges, Gettysburg faculty receive the highest average salary for all ranks (\$22,700). Lock Haven's average salary of \$26,100 is 15 percent higher than Gettysburg's and is in line with the Pennsylvania State-owned colleges in category IIA as well as above all of the selected institutions in that category.

The average salaries for ranked faculty at all of the State-owned colleges are higher than those at the University of Delaware and the University of Maryland in category I.

Academe designates the colleges and universities according to the percentile interval of all institutions nationwide in which an institution's average salary in a given rank lies. Except for Lincoln, all Pennsylvania institutions' average salaries rank far above the national averages. In category I, each of the Pennsylvania State-related universities and Indiana is rated 2 for all ranks (60 - 79.9 percent). In category IIA, each of the State-owned

colleges is rated 1 for all ranks (80 - 94.9 percent) and Lincoln is rated 4 (20 - 39.9 percent). In category IIB, Lock Haven is rated 1* for all ranks (95 percent or above). Following are the average 1980-81 salaries in all ranks of institutions nationwide (including branch campuses):¹⁰

Category	Average ranked faculty salary	
	Public	All institutions**
I	\$25,730	\$26,060
IIA	23,390	22,850
IIB	20,880	19,300

**Public, private/independent and church-related.

APPROPRIATIONS AND TUITION

Appropriations for instruction at State-related and State-owned institutions increased overall by 6 percent from 1979-80 and have increased since 1977-78 at an average annual rate of 6 percent, as displayed in table 20. From 1979-80, the allocations to the individual State-owned schools, determined by the Department of Education, increased from 3 percent to 10 percent.

When the appropriation is viewed in relation to full-time equivalent students a different picture emerges. For example, Cheyney which received a 3 percent one-year increase in total appropriation, realized a 14 percent increase per full-time

10. Ibid., p. 215.

Table 20

1980-81 APPROPRIATIONS RELATED TO TUITION AND FEE REVENUES AND PRODUCTION

Institution ¹	Appropriation (millions)	Percentage change		Appropriation as percentage of total revenues from tuition, fees and appropriation	Appropriation per full-time equivalent student	One-year change per full-time equivalent student	Percentage change	
		One year	Three-year annual average				One year	Three-year annual average
State-related								
Penn State	\$94.7	6%	6%	51%	\$1,690	\$53	3%	5%
Pittsburgh ²	63.4	6	7	49	2,190	69	3	6
Temple	67.9	6	6	51	2,510	105	4	8
Lincoln ³	3.8	6	8	57	3,100	574	23	8
Total	229.8	6	6	50	2,030	73	4	6
State-owned								
Indiana	26.6	8	9	66	2,100	131	7	6
West Chester	20.8	5	6	70	2,540	128	5	6
Bloomsburg	15.1	9	9	70	2,370	191	9	8
Millersville	14.5	6	5	68	2,490	44	2	3
Edinboro	16.6	3	5	73	3,000	-21	-1	7
Shippensburg	14.2	5	6	69	2,590	132	5	6
Slippery Rock	15.2	4	5	70	2,780	133	5	7
Clarion	14.4	5	6	70	2,730	152	6	4
Kutztown	13.3	8	6	69	2,800	80	3	5
California	15.0	5	4	78	3,550	26	1	7
East Stroudsburg	11.9	10	10	70	2,900	279	11	12
Lock Haven	8.9	6	9	74	3,510	12	--a	6
Mansfield	10.4	4	5	79	4,230	321	8	8
Cheyney	9.7	3	7	77	4,520	541	14	18
Total	206.6	6	7	71	2,770	145	6	7
All institutions	436.4	6	6	58	2,320	95	4	6

1. Listed from largest to smallest in full-time equivalent students for 1980-81.

2. Includes appropriation for Titusville campus.

3. Includes appropriation for Eagleville campus.

a. Rounds to less than 1 percent.

SOURCE: Governor's Executive Budget, 1979-80, 1980-81 and 1981-82; data furnished by the individual State-related institutions; and Bureau of Budget and Management, Pennsylvania Department of Education.

equivalent student because of its declining student body. From 1979-80 to 1980-81, all institutions received on the average a 4 percent increase per full-time equivalent student, although over the three-year period appropriations per student have increased at an average annual rate of 6 percent.

Even more significant is the varying degree of Commonwealth support per full-time equivalent student among institutions. The Commonwealth's appropriation per full-time equivalent student at a State-owned school is approximately one-third more than for a student at a State-related university (\$2,770 as compared with \$2,030). The range in appropriation per full-time equivalent student, which is inversely related to the amount of an institution's student credit-hour output, is wide. For example, the Commonwealth pays about 2-2/3 times as much for a full-time equivalent student at Cheyney as for a student at Penn State and twice as much for a student at Mansfield as for one at Indiana.

A similar picture emerges when viewing total instructional cost (allocated appropriation plus tuition): The Commonwealth's level of support increases as the size of an institution's output decreases. The Commonwealth, which assumes 58 percent of instructional cost for all institutions, accounts for 50 percent of cost at the State-related universities and 71 percent at the State-owned colleges and university.

Appendix table 12A, p. 85, presents the most recent (1981-82) tuition and fees for the same institutions listed in table 19 and categorized in the same manner. Since the State-owned institutions have the same tuition rates and slightly varying fees, they are shown as a single item in category IIA; the increase proposed for spring 1982 is not included. In each category except out-of-state graduate, the tuition rates at Pennsylvania's public institutions are higher than those at many of the selected public institutions but are a bargain for Pennsylvania residents when compared with the private rates. In most cases, it is still less expensive for a Pennsylvania resident to attend a Pennsylvania public institution than pay the out-of-state rate in a neighboring state, although a Pennsylvania undergraduate student may pay slightly less at Rutgers than at Temple. The State-owned institutions have the lowest out-of-state graduate rates of all listed.

With respect to the future fiscal prospects for public higher education nationwide, Academe concludes:

The deteriorating economic position of the profession, and especially the likelihood of further deterioration, rests on several developments that I will review briefly.

Much-heralded enrollment declines that many thought had already begun are finally about to begin

The budgetary prospects for higher education have never looked worse, certainly for the public sector. Most states are trying to cope with substantial shortfalls in revenue, due to the depressed state of the economy, by

making immediate cutbacks in state spending. Because higher education expenditures bulk large in most state budgets, public resources for higher education are contracting, in some cases by substantial amounts.

Closely related are tax-expenditure limitations adopted in many states. These will constrain the future growth of revenues and expenditures. Hence, any additional support for higher education will be available only by cutting spending on other important social programs.

A new blow has come with the announced plans of Congress to cut federal expenditures, including expenditures on higher education. These cutbacks will force substantial reductions in many programs that were initiated by a broad public mandate and that at the margin are important to the quality and financial health of higher education. . . .

For all of these reasons the prospects for the remainder of the 1980's look even bleaker than the most pessimistic forecasts of a year ago.¹¹

11. Ibid., pp. 210-211.

TOTAL YEAR FULL-TIME EQUIVALENT STUDENTS AND DEGREE PRODUCTION¹
1977-78 to 1980-81

Institution	Full-time equivalent students				Degrees			
	1977-78	1978-79	1979-80	1980-81	1977-78	1978-79	1979-80	1980-81
State-related								
Penn State								
Total	54,498	53,824	54,550	55,994	10,017	10,318	9,931	9,963
Undergraduate	49,782	49,456	50,137	51,374	8,251	8,588	8,319	8,024
Graduate	4,716	4,368	4,413	4,620	1,766	1,730	1,612	1,939
Pittsburgh								
Total	28,537	27,828	28,276	29,011	6,366	6,264	6,064	6,117
Undergraduate	20,123	19,810	19,941	20,760	3,603	3,555	3,460	3,446
Graduate	8,414	8,018	8,335	8,251	2,763	2,709	2,604	2,671
Temple								
Total	28,201	26,957	26,562	26,987	5,742	5,588	5,587	5,395
Undergraduate	19,226	17,885	17,961	17,852	3,359	3,139	3,246	3,101
Graduate	8,975	9,072	8,601	9,135	2,383	2,449	2,341	2,294
Lincoln								
Total	1,199	1,158	1,412	1,217	155	217	216	253
Undergraduate	1,151	1,046	1,207	998	155	183	181	152
Graduate	48	112	205	219	n.a.	34	35	101
State-owned								
Bloomsburg								
Total	6,302	6,191	6,366	6,354	1,286	1,339	1,311	1,327
Undergraduate	5,802	5,755	5,875	5,901	1,057	1,118	1,074	1,088
Graduate	500	436	491	453	229	221	237	239
California								
Total	4,473	4,208	4,068	4,226	1,029	950	851	825
Undergraduate	4,058	3,840	3,724	3,850	822	780	700	664
Graduate	415	368	344	376	207	170	151	161
Cheyney								
Total	2,747	2,363	2,371	2,143	428	359	348	369
Undergraduate	2,606	2,263	2,285	2,078	390	316	318	343
Graduate	141	100	86	65	38	43	30	26
Clarion								
Total	5,050	5,213	5,299	5,262	1,046	1,118	1,001	961
Undergraduate	4,790	4,970	5,091	5,034	881	997	881	834
Graduate	260	243	208	228	165	121	120	127
East Stroudsburg								
Total	4,276	4,045	4,096	4,090	838	770	766	767
Undergraduate	3,909	3,709	3,776	3,737	765	692	686	677
Graduate	367	336	320	353	73	78	80	90
Edinboro ²								
Total	5,760	5,484	5,356	5,541	1,363	1,253	1,074	1,012
Undergraduate	5,279	5,046	4,946	5,095	1,053	978	837	797
Graduate	481	438	410	446	310	275	237	215
Indiana ²								
Total	11,885	12,264	12,427	12,648	2,461	2,657	2,675	2,657
Undergraduate	11,080	11,469	11,601	11,805	2,090	2,254	2,255	2,217
Graduate	805	795	826	843	371	403	418	440
Kutztown								
Total	4,593	4,512	4,521	4,762	921	919	895	835
Undergraduate	4,278	4,203	4,242	4,474	747	773	762	708
Graduate	315	309	279	288	174	146	133	127
Lock Haven								
Total	2,350	2,252	2,384	2,526	464	388	395	401
Undergraduate	2,350	2,252	2,384	2,526	464	388	395	401
Graduate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Mansfield								
Total	2,618	2,400	2,539	2,451	562	548	497	462
Undergraduate	2,488	2,287	2,381	2,312	531	510	448	400
Graduate	130	113	158	139	31	38	49	62
Millersville								
Total	5,650	5,523	5,600	5,829	1,148	1,238	1,082	1,085
Undergraduate	4,934	4,863	4,956	5,189	914	1,002	894	917
Graduate	716	660	644	640	234	236	188	168
Shippensburg								
Total	5,488	5,405	5,500	5,467	1,315	1,274	1,389	1,384
Undergraduate	4,819	4,760	4,923	4,920	899	835	1,018	1,017
Graduate	669	645	577	547	416	439	371	367
Slippery Rock								
Total	5,815	5,504	5,536	5,460	1,164	1,008	1,152	1,063
Undergraduate	5,454	5,178	5,178	5,152	1,023	872	1,003	955
Graduate	361	326	358	308	141	136	149	108
West Chester								
Total	8,238	8,091	8,188	8,189	1,576	1,556	--a	1,360
Undergraduate	7,436	7,335	7,449	7,417	1,207	1,213	--a	1,063
Graduate	802	756	739	772	369	343	--a	297

1. Data for each year represent the summer term preceding the academic year plus the academic year. Full-time equivalent students are calculated by dividing undergraduate student credit hours by 30 and graduate student credit hours by 24. Undergraduate degrees include bachelor's degrees only. Graduate degrees include master's at all institutions except Lock Haven which does not have a master's program, first professional and doctor's at Pittsburgh and Temple and doctor's at Penn State and Indiana University.

2. Edinboro student credit-hour data for fiscal years 1977-78 and 1978-79 and Indiana University student credit-hour data for fiscal years 1979-80 and 1980-81 from "State College and University Budgeting System Common Cost Accounting Reports."

a. Noncomparable data reported.

n.a. Not applicable.

SOURCE: Reports provided by the individual institutions, 1977, 1978, 1979, 1980 and 1981.

Appendix Table 2A

STUDENT CREDIT-HOUR PRODUCTION BY LEVEL¹
 TOTAL YEAR AND SUMMER, 1977-78 to 1980-81
 (Credit hours in 000s)

Institution	Total year							Summer			
	Lower division	Upper division	Total undergraduate	Master's	First professional	Doctor's	Total graduate	Grand total	Undergraduate	Graduate	Total
State-related											
Penn State											
1977-78	915	579	1,494	54	n.a.	59	113	1,607	71	27	98
1978-79	908	576	1,484	49	n.a.	56	105	1,589	77	21	98
1979-80	966	538	1,504	50	n.a.	56	106	1,610	70	21	91
1980-81	1,003	538	1,541	50	n.a.	61	111	1,652	71	23	94
Pittsburgh											
1977-78	404	200	604	130	43	29	202	806	80	44	124
1978-79	383	211	594	119	41	32	192	786	69	39	108
1979-80	386	212	598	123	43	33	199	797	65	48	113
1980-81	406	217	623	121	44	33	198	821	72	48	120
Temple											
1977-78	326	251	577	112	90	14	216	793	52	28	80
1978-79	294	242	536	113	96	9	218	754	48	25	73
1979-80	295	244	539	114	86	7	207	746	47	27	74
1980-81	295	241	536	114	97	8	219	755	46	31	77
Lincoln											
1977-78	26	8	34	1	n.a.	n.a.	1	35	3	n.a.	3
1978-79	22	9	31	3	n.a.	n.a.	3	34	3	--a	3
1979-80	28	9	37	5	n.a.	n.a.	5	42	5	--a	5
1980-81	24	6	30	5	n.a.	n.a.	5	35	4	1	5
State-owned											
Bloomsburg											
1977-78	108	66	174	12	n.a.	n.a.	12	186	12	6	18
1978-79	106	66	172	10	n.a.	n.a.	10	182	12	5	17
1979-80	112	64	176	12	n.a.	n.a.	12	188	13	6	19
1980-81	112	65	177	11	n.a.	n.a.	11	188	15	5	20
California											
1977-78	89	33	122	10	n.a.	n.a.	10	132	12	4	16
1978-79	81	34	115	9	n.a.	n.a.	9	124	9	3	12
1979-80	80	32	112	8	n.a.	n.a.	8	120	9	3	12
1980-81	85	31	116	9	n.a.	n.a.	9	125	11	3	14
Cheyney											
1977-78	59	20	79	3	n.a.	n.a.	3	82	4	1	5
1978-79	49	18	67	2	n.a.	n.a.	2	69	3	1	4
1979-80	49	19	68	2	n.a.	n.a.	2	70	3	1	4
1980-81	46	16	62	2	n.a.	n.a.	2	64	3	1	4
Clarion											
1977-78	103	41	144	6	n.a.	n.a.	6	150	6	2	8
1978-79	106	43	149	6	n.a.	n.a.	6	155	9	2	11
1979-80	113	40	153	5	n.a.	n.a.	5	158	9	2	11
1980-81	112	39	151	5	n.a.	n.a.	5	156	9	2	11
East Stroudsburg											
1977-78	79	38	117	9	n.a.	n.a.	9	126	10	6	16
1978-79	77	34	111	8	n.a.	n.a.	8	119	8	5	13
1979-80	80	34	114	8	n.a.	n.a.	8	122	10	4	14
1980-81	78	34	112	9	n.a.	n.a.	9	121	10	5	15

Edinboro ²											
1977-78	104	54	158	12	n.a.	n.a.	12	170	--b	--b	--b
1978-79	103	49	152	11	n.a.	n.a.	11	163	--b	--b	--b
1979-80	104	45	149	10	n.a.	n.a.	10	159	10	4	14
1980-81	108	45	153	11	n.a.	n.a.	11	164	12	4	16
Indiana ²											
1977-78	221	112	333	19	n.a.	--c	19	352	25	7	32
1978-79	229	115	344	19	n.a.	--c	19	363	29	8	37
1979-80	236	112	348	20	n.a.	--c	20	368	--b	--b	--b
1980-81	235	119	354	20	n.a.	--c	20	374	--b	--b	--b
Kutztown											
1977-78	82	46	128	8	n.a.	n.a.	8	136	6	3	9
1978-79	83	43	126	7	n.a.	n.a.	7	133	5	3	8
1979-80	85	42	127	7	n.a.	n.a.	7	134	5	3	8
1980-81	91	43	134	7	n.a.	n.a.	7	141	6	3	9
Lock Haven											
1977-78	52	19	71	n.a.	n.a.	n.a.	n.a.	71	5	n.a.	5
1978-79	51	16	67	n.a.	n.a.	n.a.	n.a.	67	4	n.a.	4
1979-80	56	16	72	n.a.	n.a.	n.a.	n.a.	72	3	n.a.	3
1980-81	60	16	76	n.a.	n.a.	n.a.	n.a.	76	3	n.a.	3
Mansfield											
1977-78	51	23	74	3	n.a.	n.a.	3	77	4	1	5
1978-79	46	22	68	3	n.a.	n.a.	3	71	3	1	4
1979-80	51	20	71	4	n.a.	n.a.	4	75	4	1	5
1980-81	50	20	70	3	n.a.	n.a.	3	73	4	2	6
Millersville											
1977-78	113	35	148	17	n.a.	n.a.	17	165	15	9	24
1978-79	114	32	146	16	n.a.	n.a.	16	162	13	9	22
1979-80	116	32	148	15	n.a.	n.a.	15	163	13	9	22
1980-81	124	32	156	15	n.a.	n.a.	15	171	15	9	24
Shippensburg											
1977-78	107	38	145	16	n.a.	n.a.	16	161	8	7	15
1978-79	108	35	143	15	n.a.	n.a.	15	158	8	6	14
1979-80	109	39	148	14	n.a.	n.a.	14	162	11	6	17
1980-81	107	41	148	13	n.a.	n.a.	13	161	11	5	16
Slippery Rock											
1977-78	118	46	164	9	n.a.	n.a.	9	173	11	3	14
1978-79	111	45	156	8	n.a.	n.a.	8	164	9	3	12
1979-80	111	44	155	9	n.a.	n.a.	9	164	9	3	12
1980-81	114	41	155	7	n.a.	n.a.	7	162	9	3	12
West Chester											
1977-78	146	77	223	19	n.a.	n.a.	19	242	17	8	25
1978-79	151	69	220	18	n.a.	n.a.	18	238	17	7	24
1979-80	156	68	224	18	n.a.	n.a.	18	242	18	6	24
1980-81	157	66	223	18	n.a.	n.a.	18	241	19	7	26

1. Data for each year represent the summer term preceding the academic year plus the academic year.
 2. Edinboro student credit-hour data for fiscal years 1977-78 and 1978-79 and Indiana University data for fiscal years 1979-80 and 1980-81 from "State College and University Budgeting System Common Cost Accounting Reports."

- a. Rounds to less than 1,000.
 b. Data not available by terms.
 c. Included in master's level.
 n.a. Not applicable.

SOURCE: Reports provided by the individual institutions, 1977, 1978, 1979, 1980 and 1981.

Appendix Table 3A

TOTAL STUDENT CREDIT-HOUR PRODUCTION
BY LEVEL AND SELECTED HEGIS CLASSIFICATION
1980-81
(Credit hours in 000s)

HEGIS classification and level	State-related							State-owned										
	Penn State	Pittsburgh	Temple	Lincoln	Bloomsburg	California	Cheyney	Clarion	East Stroudsburg	Edinboro	Indiana	Kutztown	Lock Haven	Mansfield	Millersville	Shippensburg	Slippery Rock	West Chester
All areas ¹																		
Lower division	1,003.2	406.3	294.8	24.2	112.5	84.3	45.9	111.8	77.9	107.5	234.6	90.8	60.2	50.0	124.0	107.0	113.8	157.0
Upper division	538.0	216.5	240.8	5.8	64.5	31.2	16.4	39.2	34.2	45.4	119.5	43.4	15.6	19.4	31.7	40.6	40.8	65.6
Graduate	110.9	198.0	219.2	5.2	10.9	9.0	1.6	5.5	8.5	10.7	20.2	6.9	--	3.3	15.3	13.1	7.4	18.5
Biological sciences																		
Lower division	56.5	14.0	6.6	1.7	6.0	4.2	n.d.	4.9	5.7	6.5	p.d.	4.3	2.2	3.0	6.1	6.7	6.8	6.2
Upper division	25.7	8.7	4.2	.2	2.1	1.9	n.d.	1.6	1.8	.7	p.d.	1.6	.3	.8	1.7	.8	.7	2.1
Graduate	5.4	2.3	1.3	--	.1	.5	n.d.	.6	.5	.4	p.d.	.2	--	--	.2	.3	.3	.2
Business and management																		
Lower division	52.5	6.5	41.0	1.7	10.4	7.6	n.d.	24.5	.3	7.9	p.d.	8.4	--	--	6.8	14.5	3.8	5.4
Upper division	85.8	14.0	48.0	1.2	23.2	3.9	n.d.	15.7	.9	2.6	p.d.	4.0	--	--	.7	15.2	5.9	7.5
Graduate	9.8	23.9	30.5	--	.9	--	n.d.	.8	--	--	p.d.	--	--	--	.1	2.4	--	--
Communications																		
Lower division	1.3	--	16.3	--	--	--	n.d.	2.7	.2	--	p.d.	.6	--	--	.1	1.9	--	--
Upper division	11.9	1.0	15.2	--	--	--	n.d.	1.6	--	--	p.d.	1.0	--	--	.1	2.0	--	--
Graduate	.2	--	2.7	--	--	--	n.d.	.5	--	--	p.d.	--a	--	--	.4	--	--	--
Computer and information sciences																		
Lower division	19.1	17.1	4.5	--	--	--	n.d.	1.6	1.9	--	p.d.	1.4	--	4.5	3.3	--	2.4	--
Upper division	15.1	5.5	6.0	--	--	--	n.d.	--a	.4	--	p.d.	.7	--	1.4	1.1	--	.1	--
Graduate	1.7	6.2	3.5	--	--	--	n.d.	--a	--	--	p.d.	--	--	--	--a	--	--	--
Education																		
Lower division	62.7	10.4	23.9	3.8	10.9	12.2	n.d.	8.9	14.8	9.7	p.d.	10.5	9.8	8.9	17.0	8.9	14.5	22.0
Upper division	40.1	13.7	28.4	.6	18.4	15.4	n.d.	10.1	17.9	13.4	p.d.	22.3	9.3	8.2	11.0	7.8	14.5	22.9
Graduate	22.8	41.2	47.6	.2	9.1	7.3	n.d.	2.2	7.2	6.4	p.d.	3.5	--	2.8	10.7	6.8	5.7	9.7
Fine and applied arts																		
Lower division	47.9	26.1	19.5	1.2	4.8	4.1	n.d.	8.9	5.8	13.8	p.d.	6.3	3.1	--	11.6	5.2	8.4	14.9
Upper division	16.9	17.6	18.0	.3	2.9	.3	n.d.	.9	.6	4.8	p.d.	.7	1.0	--	2.2	.8	.6	3.8
Graduate	2.2	3.8	5.8	--	.2	--	n.d.	--	--	.5	p.d.	--	--	--	.3	--a	--	1.2
Foreign languages																		
Lower division	38.7	17.3	7.4	1.3	3.9	2.2	n.d.	2.3	2.1	2.3	p.d.	3.4	2.2	1.4	5.5	2.2	3.1	7.2
Upper division	6.3	3.7	4.6	.1	.1	.1	n.d.	.4	.2	.6	p.d.	.3	.1	.1	1.9	.2	.4	1.1
Graduate	1.8	1.5	1.2	--	--	--	n.d.	--	--	--	p.d.	.1	--	--	.5	--	--	.2
Health professions																		
Lower division	2.9	8.7	1.5	--	1.5	--	n.d.	--	.3	1.1	p.d.	--	--	--	--	--	2.9	1.0
Upper division	9.1	26.4	11.0	--	3.1	--	n.d.	--	1.1	2.3	p.d.	.4	--	--	.6	--	4.1	3.8
Graduate	.7	41.7	68.5	--	--	--	n.d.	--	--	.5	p.d.	--	--	--	--	--	.2	.8
Letters																		
Lower division	156.1	49.5	49.1	4.7	19.8	13.3	n.d.	14.4	11.7	17.8	p.d.	15.7	12.7	9.3	18.8	14.4	24.6	31.0
Upper division	36.8	18.1	23.3	.5	2.7	2.6	n.d.	1.1	1.8	7.7	p.d.	2.2	.8	2.3	2.1	1.0	2.3	3.3
Graduate	5.4	3.8	6.3	.2	.3	.3	n.d.	.1	--	.2	p.d.	.3	--	--a	.4	.2	.6	1.2
Mathematics																		
Lower division	133.6	51.7	24.8	3.6	11.6	11.9	n.d.	9.4	5.1	15.3	p.d.	6.2	7.6	5.7	11.0	11.4	8.1	17.9
Upper division	10.5	5.7	7.0	.1	.5	1.1	n.d.	.7	.3	.4	p.d.	1.2	.9	.5	.9	2.2	.3	1.8
Graduate	5.1	1.8	.9	--	.1	--a	n.d.	.1	--a	.1	p.d.	.2	--	--	.3	.3	--	.6
Physical sciences																		
Lower division	120.1	52.4	16.4	1.5	8.7	3.9	n.d.	5.1	9.0	9.8	p.d.	4.2	2.6	2.8	14.0	4.8	9.0	11.9
Upper division	29.3	7.6	8.0	.2	.7	1.0	n.d.	.5	1.0	.9	p.d.	.8	.1	.4	1.3	.7	1.3	2.6
Graduate	15.1	6.6	2.1	--	--a	--a	n.d.	--a	--a	.2	p.d.	--a	--	.1	.1	--a	--a	.8
Psychology																		
Lower division	33.7	32.8	12.9	.7	9.2	5.7	n.d.	6.3	4.1	7.9	p.d.	6.9	5.0	3.6	5.1	7.0	5.0	6.9
Upper division	12.9	12.6	7.9	.5	1.1	2.2	n.d.	2.7	.9	3.4	p.d.	2.3	.9	.8	3.2	2.8	1.2	3.0
Graduate	3.5	2.5	3.4	--	--	.4	n.d.	--	--a	2.2	p.d.	1.8	--	.3	2.3	.8	--a	2.3
Public affairs and services																		
Lower division	8.0	.9	11.8	--	--	--	n.d.	--	.7	--	--	--	--	1.3	.4	2.1	5.2	10.7
Upper division	24.0	8.6	12.7	--	--	--	n.d.	--	.6	--	--	--	--	.9	1.4	2.6	4.2	7.8
Graduate	6.9	18.3	9.0	4.8	--	--	n.d.	--	--	--	--	--	--	--a	--	--	.4	1.1
Social sciences																		
Lower division	122.9	79.7	30.4	3.9	25.6	15.7	n.d.	18.0	16.2	14.8	p.d.	22.5	14.7	7.1	23.9	27.2	19.2	21.9
Upper division	51.4	30.4	26.3	1.9	9.5	2.6	n.d.	2.0	6.4	8.4	p.d.	5.2	2.0	2.5	2.4	4.0	4.3	5.7
Graduate	6.7	5.4	5.1	.1	.1	.5	n.d.	--a	.6	.3	p.d.	.3	--	--a	.4	1.5	.1	.4
All other areas																		
Lower division	147.1 ^b	39.3 ^c	28.8 ^d	--	.1	3.4	n.d.	4.8	.2	.6	p.d.	.4	.2	2.5	.2	.7	.9	--
Upper division	162.0 ^b	42.8 ^c	20.0 ^d	--	.2	.2	n.d.	2.0	.2	.1	p.d.	.5	.1	1.7	1.1	.6	.8	--
Graduate	23.5 ^b	38.8 ^c	31.4 ^d	--	--	--	n.d.	1.0	--	--	p.d.	.5	--	.1	.1	.4	--	--

1. Because of rounding, totals may not agree. Data for Indiana University from "State College and University Budgeting System Common Cost Accounting Reports."

a. Rounds to less than 100 student credit hours.

b. Undergraduate level includes credit hours of 121,600 in engineering, 30,900 in agriculture and natural resources, 11,400 in architecture and environmental design and 37,700 in home economics. Graduate level includes 14,000 in engineering, 3,800 in agriculture and natural resources, 2,600 in home economics and 900 in architecture and environmental design.

c. Undergraduate level includes credit hours of 55,000 in engineering. Graduate level includes 14,300 in engineering and 19,700 in law.

d. Undergraduate level includes credit hours of 22,700 in engineering and 7,000 in law. Graduate level includes 300 in engineering and 30,600 in law.

n.d. No data submitted by HEGIS classifications as of February 1, 1982.

p.d. Poor data.

SOURCE: Student credit-hour reports provided by the individual institutions, 1981.

Appendix Table 4A

DEGREES CONFERRED BY MAJOR FIELD OF STUDY AND LEVEL OF PROGRAM
1979-80

Field of study and level	State-related								State-owned										Total
	Penn State	Pittsburgh	Temple	Lincoln	Bloomsburg	California	Cheyney	Clarion	East Stroudsburg	Edinboro	Indiana	Kutztown	Lock Haven	Mansfield	Millersville	Shippensburg	Slippery Rock	West Chester	
Biological sciences																			
Bachelor's	416	179	74	21	39	12	14	41	57	28	53	21	15	16	38	39	31	24	1,118
Graduate	104	37	30	--	15	4	--	9	3	8	13	11	--	--	8	6	3	6	257
Business and management																			
Bachelor's	1,644	263	709	38	349	55	78	332	--	100	505	121	1	18	41	343	11	205	4,813
Graduate	99	366	250	--	11	--	--	18	--	--	19	--	--	--	59	--	--	--	822
Computer and information sciences																			
Bachelor's	120	94	66	--	18	3	--	34	8	2	28	--	27	11	22	20	1	23	477
Graduate	21	63	28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	112
Communications																			
Bachelor's	261	24	346	--	14	11	--	33	22	--	65	21	10	--	5	101	2	4	919
Graduate	11	--	6	--	--	3	--	14	--	--	13	--	--	--	16	--	--	--	63
Education																			
Bachelor's	678	195	552	18	362	273	76	228	336	275	447	223	195	147	437	145	399	708	5,694
Graduate	418	625	814	--	196	121	28	45	67	169	259	81	--	42	125	131	118	155	3,394
Engineering																			
Bachelor's	1,339	586	157	--	--	29	4	--	--	--	--	--	--	--	--	--	--	--	2,115
Graduate	216	175	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	391
Fine and applied arts																			
Bachelor's	158	26	192	--	18	5	14	23	8	79	45	105	9	30	38	4	7	46	807
Graduate	32	18	100	--	--	--	--	--	--	4	30	--	--	--	--	--	--	1	185
Foreign languages																			
Bachelor's	79	35	34	12	7	6	--	9	8	9	21	7	2	2	33	7	8	34	313
Graduate	28	19	8	--	--	--	--	--	--	--	1	6	--	--	14	--	--	4	80
Health professions																			
Bachelor's	283	404	329	--	69	13	--	49	27	58	155	6	--	1	22	13	48	83	1,560
Graduate	116	610	436	--	--	--	--	13	--	30	--	--	--	--	--	--	--	15	1,220
Home economics																			
Bachelor's	444	--	--	--	--	--	7	--	--	1	234	--	--	45	--	--	--	--	731
Graduate	39	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	39
Law																			
Bachelor's	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Graduate	--	204	339	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	543
Letters																			
Bachelor's	271	324	107	9	25	35	29	19	22	38	50	19	15	23	44	22	38	89	1,179
Graduate	56	61	49	--	6	3	1	2	--	3	25	4	--	--	9	12	8	11	250
Mathematics																			
Bachelor's	62	37	18	3	13	24	6	10	7	13	27	5	11	7	20	25	10	25	323
Graduate	30	12	5	--	--	--	--	6	--	1	11	4	--	--	7	4	--	8	88
Physical sciences																			
Bachelor's	361	154	30	4	18	20	11	27	24	21	28	13	6	7	30	8	18	20	800
Graduate	131	54	17	--	2	5	1	--	--	6	10	--	--	--	2	5	1	15	249
Psychology																			
Bachelor's	135	292	145	14	35	13	24	34	43	51	63	14	13	27	73	48	15	75	1,114
Graduate	48	30	55	--	--	--	--	--	--	9	5	10	--	6	18	--	--	19	200
Public affairs and services																			
Bachelor's	543	179	232	--	--	67	14	--	10	70	59	56	40	75	36	118	178	158	1,835
Graduate	152	270	157	29	--	--	--	--	--	--	--	--	--	--	--	64	2	18	692
Social sciences																			
Bachelor's	431	521	279	43	105	96	49	26	111	71	373	46	33	32	55	86	215	73	2,645
Graduate	66	72	42	--	7	15	--	3	7	7	32	8	--	1	6	7	2	18	293
Other																			
Bachelor's	1,094 ^a	148	78	--	2	38	--	14	3	21	10	12	19	7	--	25	22	5	1,498
Graduate	158 ^a	141	1	--	--	--	--	19	3	--	--	6	--	--	29	--	--	--	357
Total																			
Bachelor's	8,319	3,461	3,348	162	1,074	700	326	879	686	837	2,163	669	396	448	894	1,004	1,003	1,572	27,941
Graduate	1,725	2,757	2,337	29	237	151	30	129	80	237	418	130	--	49	189	333	134	270	9,235

a. Seventy percent of the bachelor's and 46 percent of the graduate were conferred in agriculture and natural resources.

NOTE: The graduate level includes master's degrees at all institutions except Lock Haven, doctor's and first professional (including medical) at Pittsburgh and Temple and doctor's at Penn State and Indiana University. Degree totals for all fields of study in this table vary slightly from those reported under the Snyder amendments for Temple, Indiana University and Kutztown. West Chester's totals for all fields of study are somewhat overstated.

SOURCE: Pennsylvania Department of Education, Division of Education Statistics, Our Colleges and Universities Today--Degrees and Other Formal Awards Conferred, vol. XVIII (1979-80), no. 2, table 4.

Appendix Table 5A

DEGREES CONFERRED IN EACH HEGIS CLASSIFICATION
AS A PERCENTAGE OF TOTAL DEGREES CONFERRED
BY PENNSYLVANIA STATE-RELATED AND STATE-OWNED INSTITUTIONS
AND BY ALL U.S. INSTITUTIONS

HEGIS classification	Bachelor's degrees			Graduate degrees		
	PA	PA	U.S.	PA	PA	U.S.
	1979-80	1978-79	1978-79	1979-80	1978-79	1978-79
Education	20%	23%	14%	37%	38%	36%
Business and management	17	16	19	9	9	15
Social sciences	9	10	12	3	3	5
Engineering	8	7	7	4	4	5
Public affairs and services	7	6	4	7	7	6
Health professions	6	5	7	13	12	5
Letters	4	4	5	3	2	3
Biological sciences	4	4	5	3	3	3
Psychology	4	4	5	2	2	3
Communications	3	2	3	1	1	1
Fine and applied arts	3	3	4	2	2	3
Physical sciences	3	3	3	3	3	3
Agriculture and natural resources	3	3	3	1	1	1
Home economics	3	3	2	--a	--a	1
Interdisciplinary studies	2	2	4	1	--a	2
Computer and information sciences	2	1	1	1	1	1
Mathematics	1	1	1	1	1	1
Foreign languages	1	1	1	1	1	1
Architecture and environmental design	--a	--a	1	--a	1	1
Library science	--a	--a	--a	2	2	2
Area studies	--a	--a	--a	--a	--a	--a
Law	--	--a	--a	6	6	1
Total ¹	100	100	100	100	100	100
Total degrees	27,941	28,035	921,390	9,235	9,821	402,657

1. Because of rounding, totals may not equal 100.
a. Rounds to less than 1 percent.

SOURCE: W. Vance Grant and Leo J. Eiden, National Center for Education Statistics, Digest of Education Statistics 1981 (U.S. Government Printing Office, Washington, D.C.: 1981); Pennsylvania Department of Education, Our Colleges and Universities Today--Degrees and Other Formal Awards Conferred, vol. XVII (1979-80), no. 2 and vol. XVIII (1980-81), no. 2.

Appendix Table 6A

1980-81 INSTRUCTIONAL FACULTY SALARY COST PER STUDENT CREDIT HOUR BY LEVEL AND SELECTED HEGIS CLASSIFICATION¹

HEGIS classification and level	State-related							State-owned											
	Penn State	Pittsburgh ²	Temple ³	Lincoln	Bloomsburg	California	Cheyney	Clarion	East Stroudsburg	Edinboro	Indiana	Kutztown	Lock Haven	Mansfield	Millersville	Shippensburg	Slippery Rock	West Chester	
All instruction ⁴																			
Lower division	\$22	\$23	\$35	\$38	\$36	\$47	n.d.	\$36	\$34	\$41	p.d.	\$34	\$43	\$39	\$35	\$37	\$36	\$34	
Upper division	43	48	50	78	49	72	n.d.	56	62	66	p.d.	75	79	88	66	52	60	63	
Master's	88	95	88	48	67	107	n.d.	136	52	96	p.d.	79	--	69	66	80	104	93	
Doctor's	242	179	107	--	--	--	n.d.	--	--	--	p.d.	--	--	--	--	--	--	--	
Biological sciences																			
Lower division	21	30	27	34	41	55	n.d.	35	27	52	p.d.	26	61	28	47	44	39	33	
Upper division	33	44	53	113	83	110	n.d.	83	91	141	p.d.	94	233	115	79	97	90	60	
Master's	107	263	166	--	184	237	n.d.	219	67	115	p.d.	241	--	--	121	162	299	173	
Doctor's	232	337	217	--	--	--	n.d.	--	--	--	p.d.	--	--	--	--	--	--	--	
Business and management																			
Lower division	13	24	29	29	28	18	n.d.	22	10	25	p.d.	21	--	--	22	27	28	22	
Upper division	28	27	37	36	30	33	n.d.	28	28	26	p.d.	37	--	--	28	38	30	30	
Master's	50	37	58	--	53	--	n.d.	84	--	--	p.d.	--	--	--	28	46	--	--	
Doctor's	254	248	160	--	--	--	n.d.	--	--	--	p.d.	--	--	--	--	--	--	--	
Communications																			
Lower division	18	--	23	--	--	--	n.d.	31	105	--	p.d.	19	--	--	52	38	--	--	
Upper division	35	23	37	--	--	--	n.d.	60	--	--	p.d.	147	--	--	100	51	--	--	
Master's	225	--	108	--	--	--	n.d.	140	--	--	p.d.	59	--	--	--	83	--	--	
Doctor's	--	--	183	--	--	--	n.d.	--	--	--	p.d.	--	--	--	--	--	--	--	
Computer and information sciences																			
Lower division	21	19	45	--	--	--	n.d.	38	34	--	p.d.	35	--	24	31	--	28	--	
Upper division	28	26	50	--	--	--	n.d.	273	59	--	p.d.	86	--	35	56	--	73	--	
Master's	56	36	67	--	--	--	n.d.	466	--	--	p.d.	--	--	--	442	--	--	--	
Doctor's	212	247	112	--	--	--	n.d.	--	--	--	p.d.	--	--	--	--	--	--	--	
Education																			
Lower division	24	27	37	28	35	54	n.d.	31	42	44	p.d.	39	40	47	43	58	46	36	
Upper division	72	59	53	62	52	74	n.d.	61	61	65	p.d.	72	70	102	63	50	53	67	
Master's	61	55	90	32	56	83	n.d.	118	43	78	p.d.	66	--	60	56	82	94	69	
Doctor's	204	111	87	--	--	--	n.d.	--	--	--	p.d.	--	--	--	--	--	--	--	
Fine and applied arts																			
Lower division	18	21	46	59	32	61	n.d.	52	47	46	p.d.	27	73	--	37	33	43	55	
Upper division	73	31	69	59	60	212	n.d.	173	93	103	p.d.	118	75	--	76	82	229	120	
Master's	171	112	141	--	283	--	n.d.	--	--	310	p.d.	--	--	--	191	446	--	205	
Doctor's	245	169	143	--	--	--	n.d.	--	--	--	p.d.	--	--	--	--	--	--	--	
Foreign languages																			
Lower division	26	39	52	56	70	76	n.d.	67	67	66	p.d.	59	55	47	52	60	60	41	
Upper division	73	86	65	125	325	356	n.d.	137	157	94	p.d.	153	257	197	77	144	143	68	
Master's	178	165	118	--	--	--	n.d.	--	--	--	p.d.	279	--	--	--	--	--	171	
Doctor's	164	242	127	--	--	--	n.d.	--	--	--	p.d.	--	--	--	--	--	--	--	
Health professions																			
Lower division	20	39	61	--	65	--	n.d.	--	80	79	p.d.	--	--	--	--	--	31	53	
Upper division	49	81	85	--	82	--	n.d.	--	109	80	p.d.	143	--	--	47	--	55	88	
Master's	97	228	92	--	--	--	n.d.	--	74	74	p.d.	--	--	--	--	--	118	84	
Doctor's	368	517	--	--	--	--	n.d.	--	--	--	p.d.	--	--	--	--	--	--	--	
Letters																			
Lower division	24	30	35	41	36	52	n.d.	41	36	39	p.d.	44	46	43	33	45	36	41	
Upper division	37	55	50	91	60	90	n.d.	102	57	59	p.d.	87	103	73	51	87	66	88	
Master's	109	135	126	53	204	298	n.d.	193	--	141	p.d.	132	--	528	56	208	77	105	
Doctor's	225	263	146	--	--	--	n.d.	--	--	--	p.d.	--	--	--	--	--	--	--	
Mathematics																			
Lower division	18	20	32	37	32	30	n.d.	36	34	35	p.d.	37	38	34	29	29	29	26	
Upper division	60	50	53	244	90	86	n.d.	112	62	88	p.d.	95	68	107	65	45	92	65	
Master's	67	90	126	--	119	537	n.d.	261	122	139	p.d.	155	--	--	114	108	--	120	
Doctor's	259	286	146	--	--	--	n.d.	--	--	--	p.d.	--	--	--	--	--	--	--	
Physical sciences																			
Lower division	22	20	34	44	56	77	n.d.	70	33	59	p.d.	36	60	57	25	48	46	30	
Upper division	36	56	60	215	135	79	n.d.	203	122	104	p.d.	223	359	282	150	159	124	96	
Master's	103	171	186	--	218	831	n.d.	450	216	122	p.d.	--	--	73	440	576	288	186	
Doctor's	245	283	146	--	--	--	n.d.	--	--	--	p.d.	--	--	--	--	--	--	--	
Psychology																			
Lower division	14	11	32	34	28	40	n.d.	26	21	30	p.d.	29	32	37	27	29	30	27	
Upper division	40	42	58	108	61	43	n.d.	45	53	41	p.d.	59	60	62	45	51	74	44	
Master's	123	176	95	--	--	123	n.d.	--	80	78	p.d.	49	--	131	66	51	260	69	
Doctor's	232	240	105	--	--	--	n.d.	--	--	--	p.d.	--	--	--	--	--	--	--	
Public affairs and services																			
Lower division	23	28	31	--	--	--	n.d.	--	37	99	--	--	--	25	51	43	25	22	
Upper division	58	46	37	--	--	--	n.d.	--	68	--	--	--	--	23	62	55	52	45	
Master's	52	86	67	48	--	--	n.d.	--	--	--	--	--	--	51	--	--	137	84	
Doctor's	188	117	--	--	--	--	n.d.	--	--	--	--	--	--	--	--	--	--	--	
Social sciences																			
Lower division	18	22	33	36	31	53	n.d.	32	24	34	p.d.	31	33	37	34	31	28	26	
Upper division	41	51	50	71	53	70	n.d.	88	43	57	p.d.	68	71	63	77	65	69	43	
Master's	92	152	121	39	131	153	n.d.	483	134	215	p.d.	182	--	91	98	94	130	171	
Doctor's	262	224	133	--	--	--	n.d.	--	--	--	p.d.	--	--	--	--	--	--	--	

1. The instructional faculty salary cost per student credit hour for each level was calculated as follows: the instructional salary for each rank was assigned by level according to the percentage distribution of the course credits within each rank (the total classroom course credits were increased by the division of the individual student credit hours by 3). The salary determined by this method for each rank was summed by level and divided by the total student credit-hour production at that level.

2. The first professional level cost for law at Pittsburgh is \$32.

3. The first professional level cost for all areas at Temple is \$37, business - \$25, health professions - \$23, law - \$69 and physical sciences - \$138.

4. Includes all HEGIS classifications; not just selected.

n.d. No data submitted by HEGIS classifications and incomplete salary data submitted.

p.d. Poor data.

SOURCE: Reports provided by the individual institutions, 1981.

Appendix Table 7A

AVERAGE UPPER-DIVISION CLASSROOM CLASS SIZE BY SELECTED HEGIS CLASSIFICATION¹
ACADEMIC YEARS 1979-80 and 1980-81

Institution ²	All classifications ³	Biological sciences	Business and management	Communications	Computer and information sciences	Education	Engineering	Fine and applied arts	Foreign languages	Health professions	Home economics	Letters	Library science	Mathematics	Physical sciences	Psychology	Public affairs and services	Social sciences
State-related																		
Penn State																		
1979-80	27	41	40	33	33	22	27	15	13	12	33	21	11	21	28	28	32	30
1980-81	29	42	41	29	44	17	34	18	14	17	36	24	12	19	27	25	31	30
Pittsburgh																		
1979-80	23	42	26	--	29	18	34	25	9	25	--	15	--a	19	22	30	25	23
1980-81	25	36	26	24	32	19	36	28	9	--b	--	14	--a	17	26	28	23	20
Lincoln																		
1979-80	12	17	22	--	--	13	--	9	5	--	--	11	--	6	5	12	--a	12
1980-81	9	8	17	--	--	11	--	13	4	--	--	9	--	3	3	8	--a	10
State-owned																		
Bloomsburg																		
1979-80	19	16	34	--	--	18	--	9	5	11	--	18	--	12	8	19	--	21
1980-81	20	16	35	--	--	18	--	9	4	12	--	18	--	14	10	17	--	21
California																		
1979-80	16	20	25	--	--	16	--	5	2	--	--	12	--	13	13	24	--	18
1980-81	15	15	29	--	--	14	--	2	3	--	--	11	--	12	20	27	--	15
Cheyney																		
1979-80	12	9	21	--	--c	12	--	8	--d	--	9	10	--	4	7	--	--	17
1980-81	11	--e	--e	--e	--e	--e	--e	--e	--e	--e	--e	--e	--e	--e	--e	--e	--e	--e
Clarion																		
1979-80	17	9	31	16	--f	16	--	8	3	--	--	8	8	9	10	31	--	12
1980-81	21	15	38	23	7	19	--	8	7	--	--	11	8	8	9	37	--	14
East Stroudsburg																		
1979-80	14	9	--f	--	--c	17	--	12	5	11	--	15	--	11	9	12	5	16
1980-81	19	21	32	--f	24	18	--	14	7	12	--	19	--	19	14	21	14	28
Edinboro																		
1979-80	14	10	32	--	--c	15	--	7	8	26	--g	20	--	10	14	26	--	20
1980-81	16	9	32	--	--c	15	--	8	12	21	3	21	--	13	14	31	--	22
Kutztown																		
1979-80	14	22	26	15	--	12	--	19	4	--h	--	12	9	12	10	19	--	15
1980-81	15	25	25	17	12	14	--	10	7	8	--	15	9	13	12	19	--	16
Lock Haven																		
1979-80	15	11	--	--	--	18	--	14	5	--	--	12	--	15	7	20	--	13
1980-81	16	9	--	--	--	17	--	20	6	--	--	13	--	18	6	17	--	15
Mansfield																		
1979-80	11	14	--i	--	26	9	--	--	2	--	9	15	--	13	9	12	24	13
1980-81	12	14	--i	--	26	10	--	--	5	--	8	15	--	11	7	19	25	15
Millersville																		
1979-80	17	21	20	--j	--c	19	--	13	12	12	--	17	18	17	7	24	14	18
1980-81	15	17	27	18	19	16	--	13	13	16	--	20	15	18	7	22	14	16
Shippensburg																		
1979-80	22	9	28	25	--c	25	--	15	5	--	--	17	16	23	14	23	13	21
1980-81	22	9	30	19	--c	27	--	13	8	--	--	15	9	24	10	23	17	19
Slippery Rock																		
1979-80	14	12	28	--	4	17	--	3	5	17	--	14	14	11	12	13	12	11
1980-81	17	18	32	--	12	21	--	4	7	16	--	15	16	13	13	16	13	13

1. Average upper-division class size is calculated by dividing the upper-division classroom student credit hours by the classroom assigned credits. Individual instruction is not included.

2. Data for Temple, Indiana University and West Chester are not included because noncomparable data were submitted (assigned credits were included for individual instruction).

3. Includes data from selected and other HEGIS classification, if applicable, such as agriculture and natural resources, architecture and environmental design, area studies, law and interdisciplinary studies.

a. Graduate classes only.

b. Noncomparable data reported.

c. Included in mathematics.

d. Included in fine and applied arts.

e. No data submitted by HEGIS classifications.

f. Lower-division classes only.

g. Included in health professions.

h. Included in biological sciences.

i. Included in computer and information sciences.

j. Included in letters.

SOURCE: Reports provided by the individual institutions, 1980 and 1981.

Appendix Table 8A

STUDENT CREDIT-HOUR PRODUCTION IN INDIVIDUAL INSTRUCTION¹
 BY LEVEL AND SELECTED HEGIS CLASSIFICATION
 1980-81
 (Credit hours in 000s)

HEGIS classification and level ²	State-related					State-owned												
	Penn State	Pittsburgh	Temple	Lincoln	Bloomsburg	California	Cheyney	Clarion	East Stroudsburg	Edinboro	Indiana	Kutztown	Lock Haven	Mansfield	Millersville	Shippensburg	Slippery Rock	West Chester
All areas ³																		
Lower division	2.7	2.6	3.8	--a	--a	--	.1	.1	--a	.1	p.d.	.2	.1	--a	--a	1.0	--a	.4
Upper division	30.4	15.6	10.4	.2	.6	--	.1	.9	1.3	1.9	p.d.	.9	.3	.1	.3	1.7	.3	.6
Graduate	49.8	37.6	13.4	--	.1	--	.1	.2	.2	.2	p.d.	.2	--	--a	.3	.4	.1	.5
Biological sciences																		
Lower division	.2	--	--a	--	--	--	n.d.	--	--	--	p.d.	--a	--	--	--a	--a	--	--
Upper division	1.4	.6	.1	--a	--	--	n.d.	--a	.3	--a	p.d.	.1	--a	--a	--a	.4	--a	--a
Graduate	3.8	1.9	.3	--	--a	--	n.d.	.1	.1	--a	p.d.	--a	--	--	--a	--a	--a	--a
Business and management																		
Lower division	--a	--a	--a	--	--	--	n.d.	--	--	--	p.d.	--a	--	--	--	--	--	--
Upper division	1.1	.1	.1	--a	--a	--	n.d.	.2	--a	--	p.d.	--a	--	--	--	.2	--a	--
Graduate	1.7	1.0	.5	--	--	--	n.d.	--a	--	--	p.d.	--	--	--	--	--a	--	--
Communications																		
Lower division	--	--	.1	--	--	--	n.d.	--	--	--	p.d.	--a	--	--	--	--	--	--
Upper division	.7	.4	.8	--	--	--	n.d.	--a	--	--	p.d.	--	--	--	--	.1	--	--
Graduate	.1	--	.4	--	--	--	n.d.	--a	--	--	p.d.	--	--	--	--	--a	--	--
Computer and information sciences																		
Lower division	--a	--	--a	--	--	--	n.d.	--	--	--	p.d.	--a	--	--a	--	--	--	--
Upper division	.1	.2	.3	--	--	--	n.d.	--	.1	--	p.d.	.1	--	--a	--a	--	--	--
Graduate	.3	1.1	.1	--	--	--	n.d.	--a	--	--	p.d.	--	--	--	--a	--	--	--
Education																		
Lower division	.3	.2	.7	--a	--	--	n.d.	--	--a	--	p.d.	--a	--	--	--a	.2	--a	--a
Upper division	8.5	3.1	3.9	--a	--a	--	n.d.	--a	.3	.3	p.d.	.3	--a	--a	--a	.1	.1	.1
Graduate	8.3	9.3	7.5	--	--a	--	n.d.	--a	--a	.1	p.d.	.1	--	--a	.1	.1	.1	.1
Fine and applied arts																		
Lower division	.7	.3	1.5	--	--	--	n.d.	--	--	--	p.d.	--a	.1	--	--	--a	--a	.2
Upper division	2.0	.9	1.6	--	--a	--	n.d.	--a	--a	.3	p.d.	--a	--a	--	--a	.1	.1	.3
Graduate	1.1	1.5	1.2	--	--a	--	n.d.	--	--	--a	p.d.	--	--	--	--a	--a	--	.2
Foreign languages																		
Lower division	.1	1.3	.1	--a	--a	--	n.d.	.1	--	--	p.d.	--a	--	--	--a	--a	--a	.1
Upper division	.5	.3	.1	--a	--a	--	n.d.	--	--	--a	p.d.	--a	--a	--	--a	--a	--a	--a
Graduate	.4	.4	.1	--	--	--	n.d.	--	--	--	p.d.	--a	--	--	--a	--	--	--a
Health professions																		
Lower division	--	.2	--a	--	--	--	n.d.	--	--	--	p.d.	--	--	--	--	--	--	--a
Upper division	.3	2.2	1.1	--	--	--	n.d.	--	--	.3	p.d.	--a	--	--	--	--	--a	--a
Graduate	.2	4.3	.2	--	--	--	n.d.	--	--	--a	p.d.	--	--	--	--	--	--a	--a
Letters																		
Lower division	.6	.1	.1	--a	--	--	n.d.	--	--	--	p.d.	--a	--a	--a	--a	.2	--a	--a
Upper division	1.1	.7	.2	--a	.1	--	n.d.	--	--a	.4	p.d.	.1	.1	--a	--a	--a	--a	--a
Graduate	2.8	1.4	.6	--	--a	--	n.d.	--a	--	--	p.d.	--a	--	--a	--a	--a	--a	--a
Mathematics																		
Lower division	--a	--a	--a	--	--	--	n.d.	--	--	.1	p.d.	--	--a	--	--a	.1	--	--a
Upper division	--a	.1	--a	--	--a	--	n.d.	--a	--a	--a	p.d.	--a	--a	--a	--a	.1	--a	--a
Graduate	.9	.4	--a	--	--	--	n.d.	--	--	--a	p.d.	--a	--	--	--a	--a	--	--a
Physical sciences																		
Lower division	.1	--a	--a	--	--	--	n.d.	--	--	--	p.d.	--a	--	--a	--a	--a	--	--a
Upper division	.8	.4	.2	--a	.1	--	n.d.	--a	.1	--	p.d.	--a	--a	--a	.1	.1	--a	.1
Graduate	10.9	4.6	.8	--	--a	--	n.d.	--	--a	--	p.d.	--a	--	--	--a	--a	--a	--a
Psychology																		
Lower division	.2	--	--a	--	--	--	n.d.	--	--	--	p.d.	--	--a	--	--a	--a	--	--a
Upper division	.6	1.3	.1	--a	--a	--	n.d.	--	--a	--a	p.d.	--a	--a	--a	--a	.1	--a	--a
Graduate	2.2	1.6	.3	--	--	--	n.d.	--	--	--	p.d.	--a	--	--a	.1	--	--	--a
Public affairs and services																		
Lower division	--a	--	--a	--	--	--	n.d.	--	--	--	--	--	--	--	--	--	--	--
Upper division	5.4	1.2	.6	--	--	--	n.d.	--	.1	--	--	--	--	--	--a	.1	--a	--a
Graduate	1.5	4.0	.1	--	--	--	n.d.	--	--	--	--	--	--	--a	--	--a	--a	--a
Social sciences																		
Lower division	--a	--a	.1	--a	--	--	n.d.	--	--	--	p.d.	--a	--a	--	--a	--a	--	--
Upper division	1.3	1.5	.6	.1	.3	--	n.d.	--a	.4	.6	p.d.	.1	.1	--a	--a	.3	--a	--a
Graduate	3.1	2.1	.6	--	--a	--	n.d.	--a	.1	--a	p.d.	--a	--	--	--a	.1	--a	--a
All other areas																		
Lower division	.4	.5	1.2	--	--	--	n.d.	--	--	--	p.d.	--a	--	--	--	.3	--a	--
Upper division	6.6	2.5	.5	--	--a	--	n.d.	.8	--	--	p.d.	--a	--	--	--a	.1	--	--
Graduate	12.4	3.9	.5	--	--	--	n.d.	--a	--	--	p.d.	--a	--	--	--a	--a	--	--

1. Individual instruction encompasses all instruction which, because of its nature, is not delivered in a group situation. This activity may include independent study and research (both thesis and nonthesis), internship or field work, teaching or clinical practicum and individual instruction in the fine arts.

2. The graduate level for Penn State, Pittsburgh, Temple, Lincoln and Indiana University includes master's and/or first professional (excluding medical) and doctoral student credit hours.

3. Totals of all areas may not agree due to rounding.

a. Rounds to less than 100 student credit hours.

n.d. No data submitted by HEGIS classifications.

p.d. Poor data.

SOURCE: Student credit-hour reports submitted by the individual institutions, 1981.

Appendix Table 9A

AVERAGE NUMBER OF COURSES TAUGHT PER TERM
ACADEMIC YEARS 1977-78 to 1980-81

Institution ¹	Undergraduate				Master's			
	1977-78	1978-79	1979-80	1980-81	1977-78	1978-79	1979-80	1980-81
State-related								
Penn State	1,679	1,703	1,707	1,751	335	328	325	299
Pittsburgh	--a	--a	1,704	1,748	--a	--a	947	961
Temple	1,660	1,693	1,687	1,650	--a	--a	--a	--a
Lincoln	163	165	191	170	8	10	12	18
State-owned								
Indiana	754	779	p.d.	831	--a	--a	--a	--a
West Chester	--a	--a	853	872	--a	--a	222	233
Bloomsburg	491	503	516	520	55	59	68	78
Millersville	448	456	566	520	67	65	99	79
Edinboro	590	582	528	526	96	97	89	86
Shippensburg	390	386	406	391	78	79	86	82
Slippery Rock	530	542	525	533	79	79	80	79
Clarion	425	451	454	468	76	68	68	73
Kutztown	430	450	460	--a	50	47	56	--a
California	464	474	530	492	85	98	95	87
East Stroudsburg	423	437	426	431	37	39	40	40
Lock Haven	283	295	301	310	n.a.	n.a.	n.a.	n.a.
Mansfield	411	425	409	421	30	27	27	28
Cheyney	370	358	359	321	48	43	35	31

1. Listed from largest to smallest in full-time equivalent students for 1980-81.

a. Noncomparable data reported.

n.a. Not applicable.

p.d. Poor data.

SOURCE: Reports provided by the individual institutions, 1978, 1979, 1980 and 1981.

Appendix Table 10A

AVERAGE WEEKLY CLASSROOM CONTACT HOURS REPORTED BY FULL-TIME FACULTY TEACHING IN FALL TERM

Institution	Full-time fall head count				Average undergraduate contact hours				Average graduate contact hours			
	1977	1978	1979	1980	1977	1978	1979	1980	1977	1978	1979	1980
State-related												
Penn State	--a	--a	2,621	2,602	--a	--a	8.5	8.4	--a	--a	1.9	1.9
Pittsburgh	1,612	1,608	1,546	1,530	5.3	5.3	5.1	5.2	4.4	4.2	4.2	4.3
Temple	1,339	1,330	1,310	1,248	6.3	6.2	6.5	6.5	3.9	3.8	3.9	4.0
Lincoln	76	78	72	76	11.2	11.1	10.7	10.2	n.a.	.7	1.1	1.3
State-owned												
Bloomsburg	291	307	308	312	12.0	11.6	11.8	11.0	.8	.6	.8	.8
California	313	307	299	284	8.7	8.8	8.8	10.2	1.0	1.0	.8	.9
Cheyney ¹	185	181	177	167	11.2	10.5	10.8	11.5	1.4	1.1	.8	.6
Clarion	298	308	306	302	10.5	9.4	9.5	10.5	.7	.6	.6	.6
East Stroudsburg	222	218	219	220	10.9	10.9	11.0	10.5	.5	.5	.6	.6
Edinboro	403	384	383	341	12.1	12.0	11.9	11.3	.8	1.0	1.0	1.0
Indiana	560	574	603	599	11.6	11.5	11.7	11.8	1.0	1.1	1.2	1.0
Kutztown	293	294	295	283	11.3	11.1	12.2	11.7	.6	.6	.5	.5
Lock Haven	167	159	168	161	11.9	11.7	11.7	11.7	n.a.	n.a.	n.a.	n.a.
Mansfield	193	191	187	158	10.4	10.4	10.2	10.2	.4	.3	.4	.5
Millersville	296	292	296	291	10.8	10.6	10.7	10.8	.7	.7	.7	.7
Shippensburg	298	298	294	292	9.0	9.1	9.4	9.2	1.0	1.1	1.0	1.0
Slippery Rock	323	339	334	315	--a	--a	--a	12.8	--a	--a	--a	.7
West Chester	449	483	484	467	11.8	10.7	11.4	10.9	1.2	1.1	1.1	1.1

1. At least 25 percent of Cheyney's full-time faculty each year did not submit a report of hours spent in work-related activities; for fall term 1980, 41 percent did not report.

a. Noncomparable data reported.

n.a. Not applicable.

SOURCE: Reports of average weekly hours of work-related activities provided by the individual institutions, 1978, 1979, 1980 and 1981.

Appendix Table 11A

FULL-TIME EQUIVALENT INSTRUCTIONAL FACULTY, AVERAGE INSTRUCTIONAL SALARY, PERCENTAGE DISTRIBUTION BY RANK¹
1979-80 and 1980-81
(Dollar amounts in 000s)

Institution	FTE instructional faculty	Average instructional salary		Professor		Associate professor		Assistant professor		Instructor		Nonranked ²	
		Amount	Percentage increase	Average salary	Percentage of faculty	Average salary	Percentage of faculty	Average salary	Percentage of faculty	Average salary	Percentage of faculty	Average salary	Percentage of faculty
State-related													
Penn State													
1979-80	3,044	\$19.5	--	\$29.9	16%	\$22.6	20%	\$17.4	28%	\$11.9	14%	\$16.7	22%
1980-81	3,035	21.2	9%	32.1	16	24.7	19	19.0	28	13.1	13	17.7	24
Pittsburgh													
1979-80	1,852	18.7	--	28.0	18	19.7	26	15.6	22	11.3	11	16.9	23
1980-81	1,835	20.7	11	30.8	18	22.2	26	17.5	21	12.4	11	18.3	24
Temple													
1979-80	1,861	19.4	--	32.3	22	23.6	23	17.5	22	10.2	14	7.8	19
1980-81	1,741	21.3	10	33.6	26	24.9	23	17.9	21	10.5	14	10.3	16
Lincoln													
1979-80	--a	--a	--	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a
1980-81	95	17.3	--a	22.7	16	19.0	19	16.7	35	14.2	20	13.5	10
State-owned													
Bloomsburg													
1979-80	341	22.2	--	27.6	28	22.7	41	17.4	26	13.3	5	n.a.	0
1980-81	335	23.6	6	29.0	30	24.0	40	18.4	25	13.9	5	n.a.	0
California													
1979-80	280	24.8	--	28.2	42	23.1	44	19.7	13	15.5	1	24.1	--b
1980-81	264	26.8	8	30.4	43	25.5	42	20.7	13	16.9	1	27.4	1
Cheyney													
1979-80	164	--a	--	--a	31	--a	50	--a	12	--a	7	--a	--b
1980-81	163	--c	--c	--c	31	--c	54	--c	8	--c	7	--c	--b
Clarion													
1979-80	283	22.8	--	28.1	30	22.7	38	18.7	22	14.6	9	24.1	1
1980-81	288	24.4	7	30.1	31	24.3	37	20.2	22	15.2	10	30.1	--b
East Stroudsburg													
1979-80	214	22.9	--	28.1	35	22.4	40	17.8	21	10.7	4	26.1	--b
1980-81	216	24.2	6	29.3	37	23.5	38	19.2	21	10.5	4	35.0	--b
Edinboro													
1979-80	366	23.9	--	28.4	35	23.5	38	19.1	24	13.3	3	n.a.	0
1980-81	334	25.3	6	29.4	37	24.8	36	20.5	25	19.1	2	23.9	--b
Indiana													
1979-80	646	22.5	--	27.9	37	22.0	33	17.5	22	12.9	7	21.7	1
1980-81	651	24.0	7	28.6	38	23.2	34	19.4	23	15.8	5	18.6	--b
Kutztown													
1979-80	268	24.1	--	28.6	32	23.9	43	19.5	17	14.8	7	29.2	1
1980-81	265	26.1	8	30.7	35	26.2	39	21.2	19	16.3	7	28.8	--b
Lock Haven													
1979-80	147	24.2	--	28.9	31	24.0	44	19.6	20	15.2	5	29.2	--b
1980-81	146	25.7	6	31.0	31	25.1	47	20.5	18	15.6	4	n.a.	0
Mansfield													
1979-80	179	23.4	--	29.2	26	24.1	40	19.6	25	12.8	8	19.0	1
1980-81	154	25.2	8	31.4	28	26.5	36	20.8	26	15.0	10	n.a.	0
Millersville													
1979-80	310	22.6	--	27.5	31	22.8	40	18.1	23	13.9	5	29.6	--b
1980-81	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a	--a
Shippensburg													
1979-80	290	23.5	--	28.0	34	23.1	36	19.4	27	15.9	3	29.0	--b
1980-81	284	25.0	6	30.0	37	24.5	33	20.2	26	16.5	4	23.8	--b
Slippery Rock													
1979-80	323	23.6	--	27.7	36	22.6	33	20.1	21	17.1	9	31.2	1
1980-81	295	24.9	6	30.0	39	24.9	30	19.9	21	16.2	10	22.4	--b
West Chester													
1979-80	475	22.6	--	27.6	29	22.8	40	18.8	23	14.3	8	25.5	--b
1980-81	468	24.0	6	29.4	29	24.4	39	19.8	23	15.0	9	25.7	--b

1. Average salary is calculated by dividing the total instructional salary paid to all staff members in the respective rank categories by their total full-time equivalency in the instructional function. One full-time equivalent faculty represents one full-time workload for two terms (one academic year). The summer term is treated as one term or one-half the academic year. Data for each year include the summer term and the subsequent academic year.

2. The full-time equivalency of nonranked faculty members includes the time spent in instruction of all nonranked personnel, including lecturers, administrators, librarians, research staff and graduate assistants.

- a. Noncomparable data reported.
- b. Rounds to less than 1 percent.
- c. Incomplete salary data submitted.
- n.a. Not applicable.

SOURCE: Salary reports provided by the individual institutions, 1980 and 1981.

Appendix Table 12A

 1981-82 ACADEMIC YEAR TUITION AND REQUIRED FEES
 MAIN CAMPUS OF SELECTED PUBLIC AND PRIVATE INSTITUTIONS

Category ¹	Institution	Undergraduate ²			Graduate ²			
		Public		Private	Public		Private	
		In-state	Out-of-state		In-state	Out-of-state		
I	State-related and State-owned							
	Penn State	\$1,848	\$3,711		\$1,968	\$3,936		
	Pittsburgh (average, all programs)	2,060	4,030		2,216	4,386		
	Temple	2,382	4,440		2,640	3,528		
	Indiana	1,395	2,335		1,349	1,349		
	Private (Pennsylvania)							
	Carnegie-Mellon			\$5,450			\$6,250	
	Lehigh			6,100			6,100	
	University of Pennsylvania			6,900			7,245	
	Public (other states)							
	University of Delaware	1,222	2,962		1,222	2,962		
	University of Maryland	1,073	2,998		1,563	2,763		
	University of Michigan	1,616	4,868		2,492	5,452		
	Rutgers	1,385	2,295		1,632	2,328		
	SUNY - Stony Brook	1,156	1,856		1,750	2,235		
	Ohio State	1,305	3,330		1,680	4,035		
	IIA	State-related and State-owned						
Lincoln		1,450	2,150		1,820	3,020		
State-owned ³		1,381	2,321		1,309	1,309		
Private (Pennsylvania)								
Bucknell				6,465			4,440	
Gannon				3,030			2,640	
Villanova				4,535			2,520	
Public (other states)								
Towson State University (Maryland)		1,097	2,047		1,523	1,523		
Grand Valley State Colleges (Michigan)		1,200	2,760		1,254	2,742		
Glassboro State College (N.J.)		1,068	1,668		1,442	1,922		
CUNY - Hunter College		975	1,700		1,915	2,395		
Youngstown State University (Ohio)		1,065	1,785		1,005	1,725		
IIB		State-owned						
		Lock Haven	1,372	2,312		n.a.	n.a.	
		Private (Pennsylvania)						
		Gettysburg			5,300			--
	Moravian			5,060			--	
	Washington and Jefferson			5,310			--	
	Public (other states)							
	Lake Superior State College ⁴ (Michigan)	1,203	2,283		2,160	2,160		
	Stockton State College (N.J.)	1,065	1,600		n.a.	n.a.		

1. Institutions in category I offer the doctorate degree and in the most recent three years conferred an annual average of 15 or more earned doctorates in at least three nonrelated disciplines. Institutions in category IIA award degrees above the bachelor's degree but do not qualify for category I. Institutions in category IIB award only the bachelor's degree or equivalent.

2. In instances where charges are on a per course basis, undergraduate tuitions are determined on a 30 credit-hour, academic-year workload and graduate tuitions on a 24 credit-hour, academic-year workload.

3. Bloomsburg, California, Cheyney, Clarion, East Stroudsburg, Edinboro, Kutztown, Mansfield, Millersville, Shippensburg, Slippery Rock and West Chester. The tuition of all State-owned institutions, established by the Department of Education, is identical; fees vary slightly.

4. Graduate in business administration only.
n.a. Not applicable.

SOURCE: Pennsylvania Department of Education, Tuition and Required Fees and Room and Board Charges at Institutions of Higher Education in Pennsylvania, 1981-82 (Harrisburg: 1981) and individual out-of-state institutions.

