



UNIVERSITY OF MINNESOTA

Office of the Vice President for Administration
200 Morrill Hall
Minneapolis, Minnesota 55455

October 4, 1973

TO: Regents
Committees of the Senate
Administrative Committee

FROM: Stan Kegler *SK*

SUBJECT: Attached Report

The attached report, University Trends, is an attempt to demonstrate in rather broad terms the general directions in which the University has been moving over the last five years. The information will be useful in arriving at resolution of a number of planning issues which face the University.

For those who do not wish to read the entire report, the introduction (pages 1-2) poses the questions and indicates some assumptions; the summary (pages 44-45) indicates the general trends emerging from the budgeting processes of the last five years.

Questions should be directed to David Berg, Director, Management Planning and Information Services.

SBK:glf

Enclosure

University Trends is an attempt to show, in broad overview, where the University of Minnesota system is, where it has been, and where it seems to be moving. There is no intention to provide a comprehensive statistical report. Instead, the report is built around twelve fairly specific lines of inquiry, each of which has some relation to current or potential policy issues:

1. What changes have occurred in the University's share of the higher educational workload and appropriations?
2. How are the enrollment planning parameters of the 1970 "Regents' Statement on Higher Education in Minnesota" working out?
3. Have levels of instruction at the University been changing?
4. How have workloads and budgets by units been changing relative to totals?
5. How have workloads imposed by student course selection been changing in absolute terms?
6. What is the relationship of Health Sciences funding to funding for all other purposes?
7. How are the University's funds expended by function and how has this been changing?
8. What are the enrollment trends and prospects for Duluth and Morris?
9. What are the trends in instructional productivity?
10. How much has the University been spending on Libraries and what is the trend?
11. What are the relative proportions of tuition increase? What policies does this represent?
12. What has been happening to total staff and staff by categories?

These are some very general observations to be noted before reading this report. More detailed commentary and explanation follows in each separate section and in the closing summary.

In the use of the sort of analysis presented here, it is important to distinguish the level on which the data answer questions (e.g., the relative composition of the faculty has recently shifted toward less student faculty and more senior faculty) and the level on which the data prompt questions

(e.g., is this good or bad when the desire to increase undergraduate contact with senior faculty is balanced against the cost and support of graduate students advantages inherent in the use of student faculty).

It should be emphasized, as it has been in the University's recent Legislative Requests, that an apparent drop in enrollment does not necessarily signal a decreased funding need. The University of Minnesota is an enormously complex system of twenty or more separate instructional units interacting with each other. Unit costs are widely variant. Thus neither headcounts nor measures of Full Year Equivalent (FYE) students for the system can give even an indication of the direction funding ought to take. They are very nearly meaningless measures by themselves and they are the indicators most frequently relied upon in making judgements about financing. Only if the mix of instructional programs is not changing and if the current funding is considered the correct one can total enrollment figures have any meaningful analytic use. If the quality of University education is not to suffer in a period of static or declining student numbers, funding must be based on careful program-by-program analysis of the resources essential to maintain that quality.

I.

University Share of State Higher Education Appropriation

Figure 1.1 is intended to give an overall impression of the trend of workloads and appropriations for each of the public systems as a percentage of the totals for the state. The period covered is ten years including estimates for the current biennium.

It is important to understand why the appropriation lines for the other systems are below the instructional workload lines while the opposite is true for the University. Aside from the fact that University instructional workloads contain a strong element of costly graduate and professional programs, the University also receives appropriations for many non-instructional programs, while the other systems do not.

Figure 1.2 adjusts approximately for this distortion by removing University appropriations such as Hospital funds and research and extension which are not primarily related to the workloads shown. Data on workloads derives from various MHECC reports and projections and is based on headcount or FTE student count, as available.

The increasing share received by HECC in recent years reflects the expansion of student aid programs. It points to the possibility that state policy in Minnesota is moving in the direction of support for the student rather than support for the institution. The tuition policy of the Regents must be closely coordinated with, and complementary to, this trend.

Figure 1.1 Appropriation and Instructional Workload, Percentages of Total, Minnesota Public Higher Education, 1965-66 through 1974-75

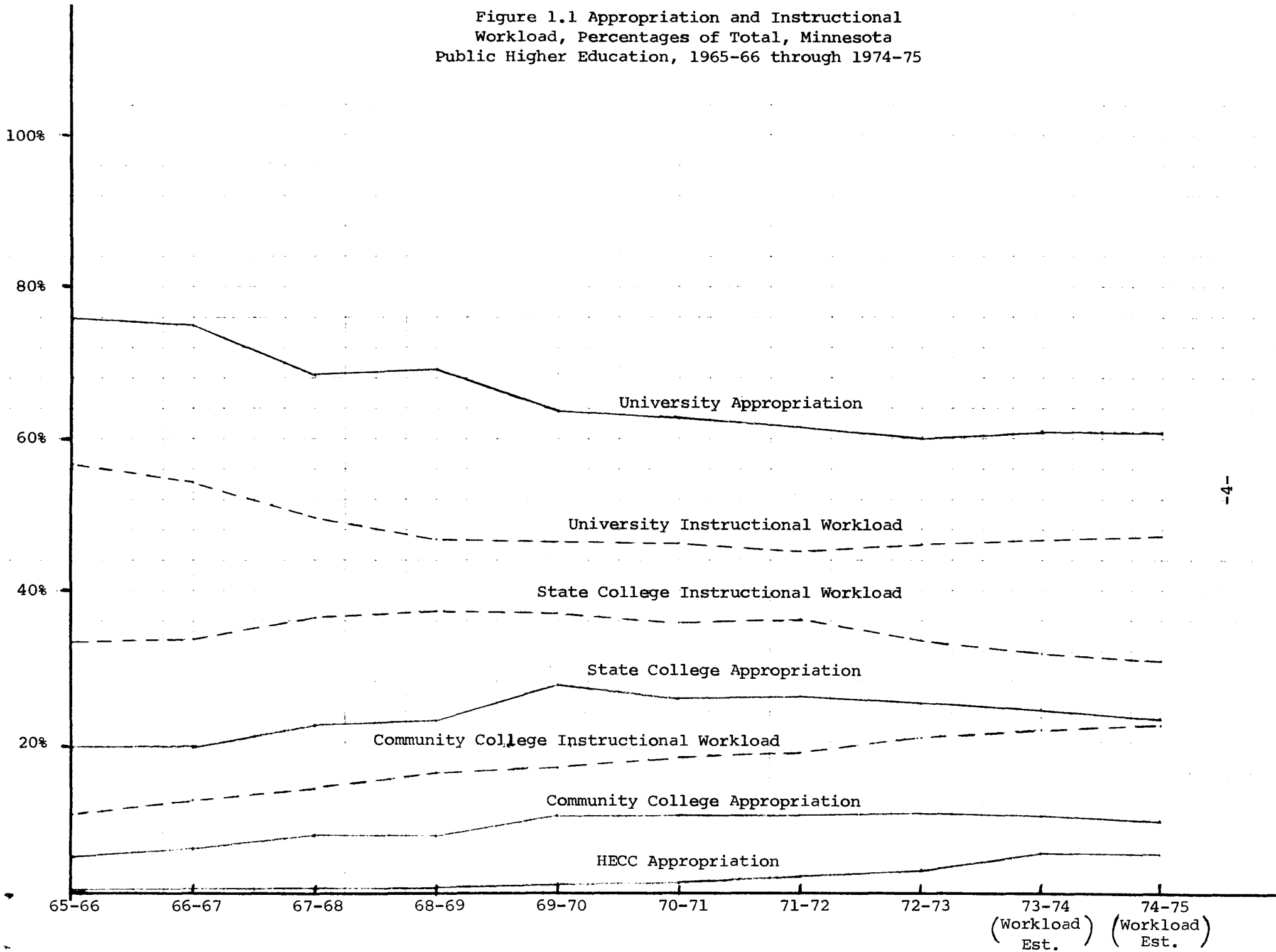
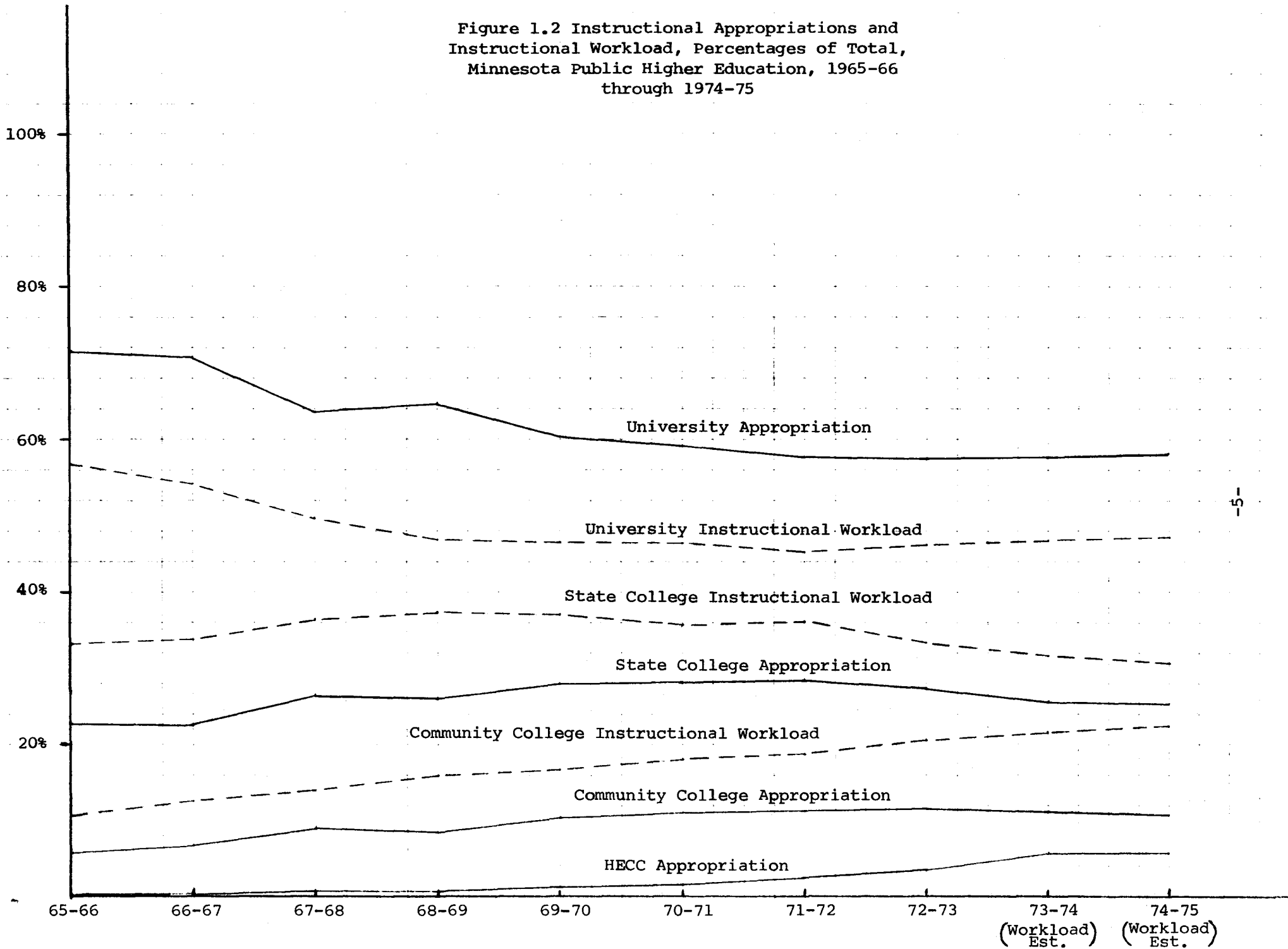


Figure 1.2 Instructional Appropriations and Instructional Workload, Percentages of Total, Minnesota Public Higher Education, 1965-66 through 1974-75



II.
Enrollment Parameters

The "Regents' Statement on Higher Education in Minnesota" of September 11, 1970 addressed itself, among many other matters, to certain enrollment expectations. These references are stated below with brief comments on actual trends since 1969-70.

Statement

"planned capacity for the Twin Cities campus of 50,000 to 53,000 students by 1978. This assumes an average annual growth of approximately 2% a year."

Result

<u>1969</u>	<u>1972</u>	<u>1974 Estimated</u>	<u>Av. Annual % Change</u>
42,424	41,220	40,160	-1%

Statement

"a redistribution (on the Twin Cities campus) of 50% of the enrollment in unique or specialized undergraduate programs plus graduate and post-baccalaureate enrollments. The remaining 50% would be lower and upper division students in general programs."

Result

This is most difficult to assess because of definitional and data shortcomings. There apparently is no reliable, comparative data on enrollments by program of study which would lend itself to determinations of "unique or specialized undergraduate programs." An approximation has been attempted through the reporting of student credit hours (1) by department giving the instruction (2) by college of enrollment, and (3) by level of instruction. Departments giving instruction were classified as unique at the undergraduate level as follows:

ROTC	Total
U. College	Total
Ag.	Total
For.	Total
Home Ec.	Selected departments
Bio. Sci.	Total
Business	Selected departments
Dentistry	Total
Education	Selected departments
Law	Total
CLA	Selected departments
Health Sci.	Total
IT	Selected departments
Vet. Med.	Total

Enrollment Parameters
(Continued)

In addition, 5XXX level instruction given to registered graduate students and all 8XXX level instruction was added. The results, of questionable interpretation or significance, are as follows:

SCH in unique or specialized undergraduate level plus graduate and post-baccalaureate, expressed as a proportion of total SCH for Twin Cities Campus -

Fall Quarter 1969 = 33.5%

Fall Quarter 1972 = 34%

Statement

"development of certain specialized innovative programs at post-baccalaureate and graduate levels on the Duluth campus, while dramatically increasing enrollments in undergraduate general and specialized programs."

Result

	FYE Students	
	<u>69-70</u>	<u>72-73</u>
Social Work, Dental Hygiene, Medical	-0-	78
Graduate	87	127
Undergraduate	4,405	4,747

Statement

"that the University of Minnesota, Morris should develop beyond its present enrollment capability, possibly through the development of cluster colleges."

Result

	<u>Fall 1969</u>	<u>Fall 1972</u>	<u>Fall 1974, Est.</u>
Enrollment	1,510	1,763	1,630

III. Levels of Instruction

One of the policies the University has been pursuing is a de-emphasis of non-unique lower division programs and a concentration on graduate, professional, and unique undergraduate programs. In order to indicate the trend of system workload, the following five year trend graph, Figure 3.1, has been computed. Solid lines are actual data; broken lines are predictions as of March 20, 1973. In this graph and those following it must be noted that enrollment re-estimates to be made in the next month or two may change the predictions substantially.

Figure 3.2 is a bar graph showing percentage of total FYE at the five levels of instruction as experienced and predicted over six years. Note that the year-to-year change is not very arresting, yet the difference between 1969-70 and 1974-75 estimated or even 1972-73 actual is substantial. The University has correctly claimed, before the 1971 and 1973 Legislatures, that such a shift was taking place but has not been able to demonstrate the dimensions and exact nature of the shift.

Figure 3.1 Full Year Equivalent Students
By Level of Instruction, 1969-70 - 1974-75 (Est.)

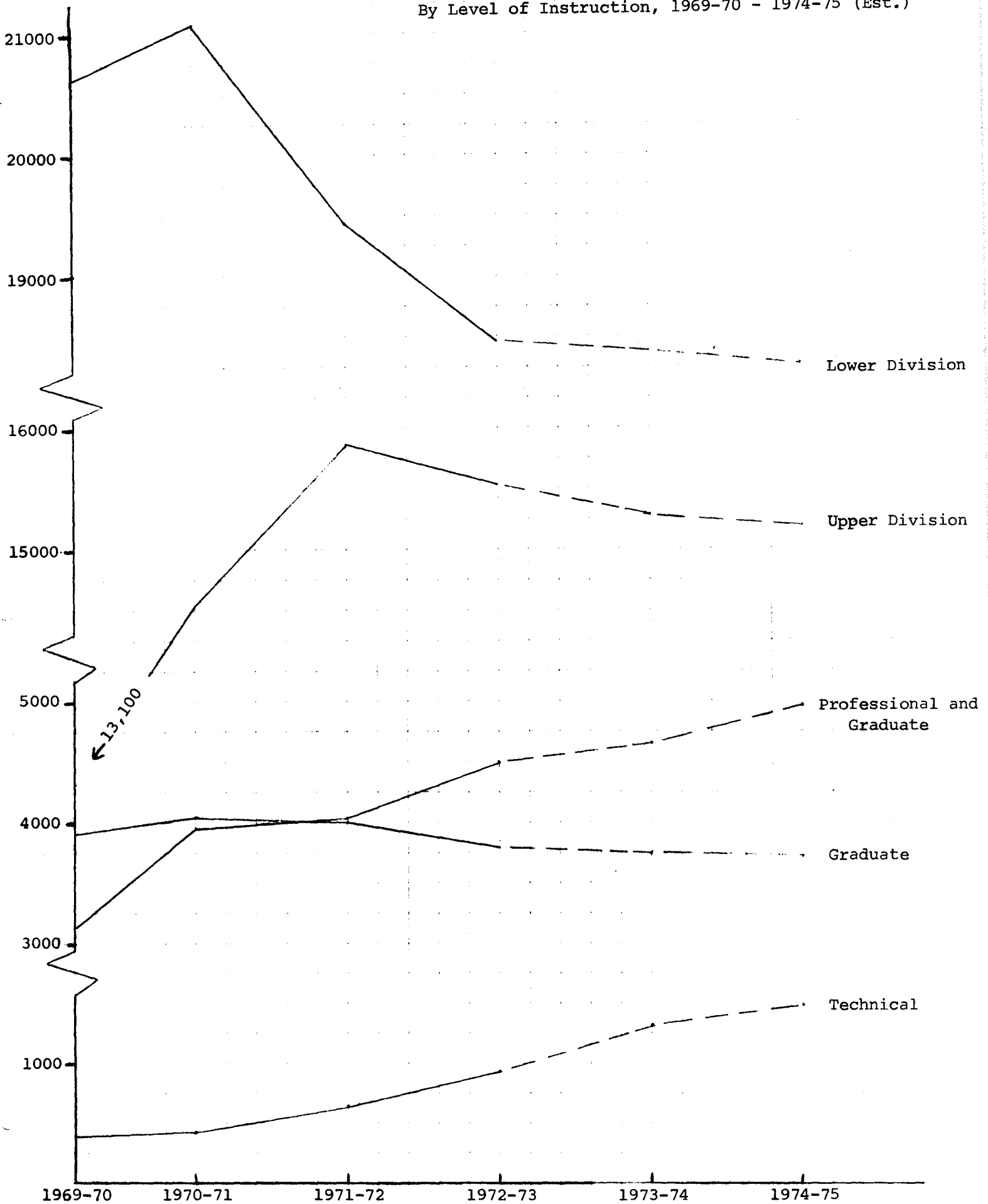
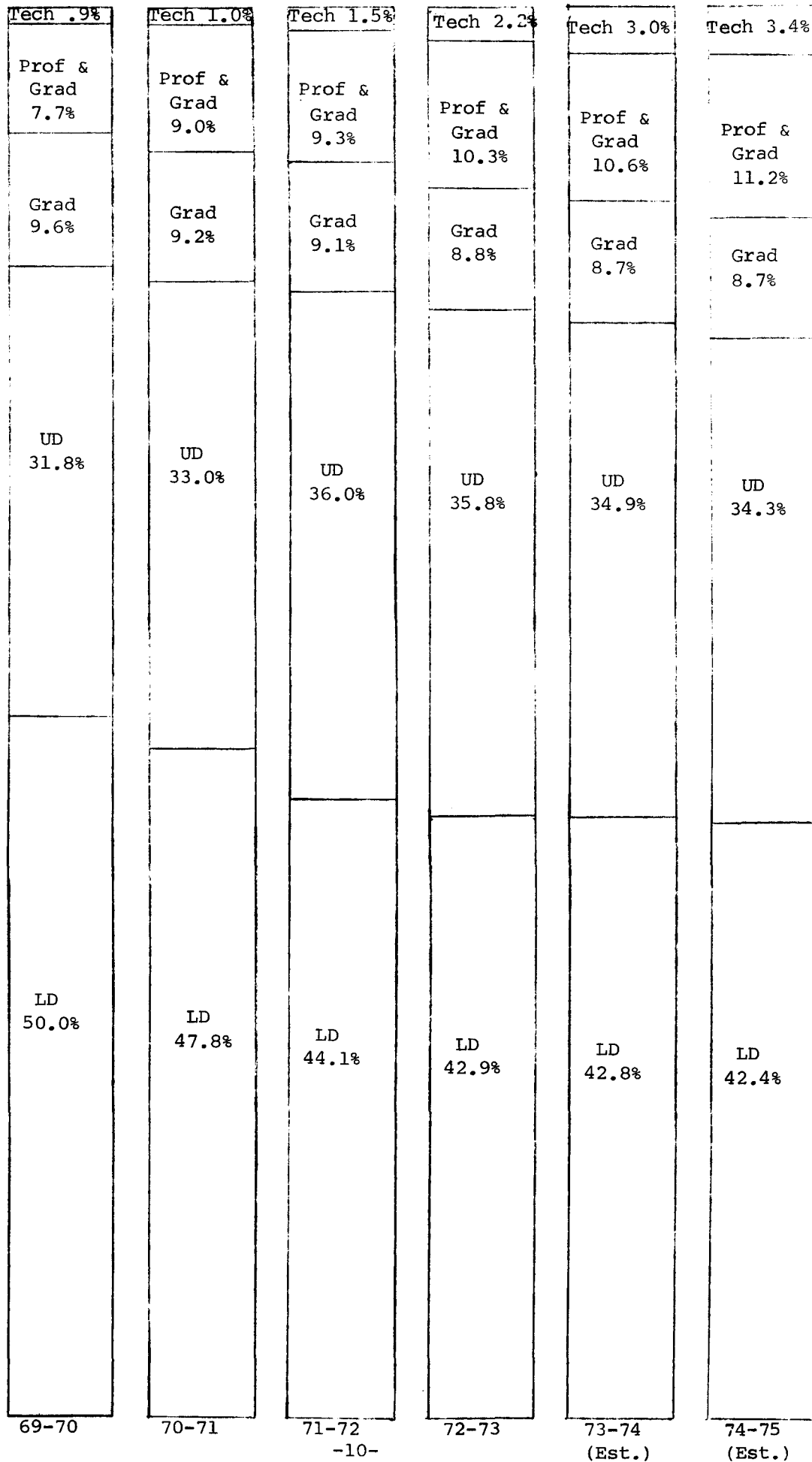


Figure 3.2 Percentage of Total FYE Students by Level of Instruction, 1969-70 - 1974-75



IV.
Unit Workloads and Budgets

Figure 4.1 is a bar graph indicating the proportion of full year equivalent student workload carried by each major instructional unit in 1970-71 and in 1972-73 and the proportion of all instructional and departmental research expenditures to the total for those units.

Figure 4.2 is a schedule of the percentages from which Figure 4.1 was constructed together with the ratio between proportion of expenditures and proportion of FYE workload and the change in that ratio between 1970-71 and 1972-73.

FYE	Expenditures
Other	Other
Morris	Morris
Duluth	Duluth
GC	GC
Business	Business
Education	Education
Law	Law
Vet	Vet
CBS	CBS
Health Sciences	Health Sciences
AFHE	AFHE
IT	IT
CLA	CLA

FYE	Expenditures
Waseca	Waseca
Crookston	Crookston
Morris	Morris
Duluth	Duluth
GC	GC
Business	Business
Education	Education
Law	Law
Vet	Vet
CBS	CBS
Health Sciences	Health Sciences
AFHE	AFHE
IT	IT
CLA	CLA

Figure 4.1
 University of Minnesota
 Unit Percentages of Full
 Year Equivalent Student
 Workload and of Instruc-
 tional Expenditures
 1970-71 and 1972-73

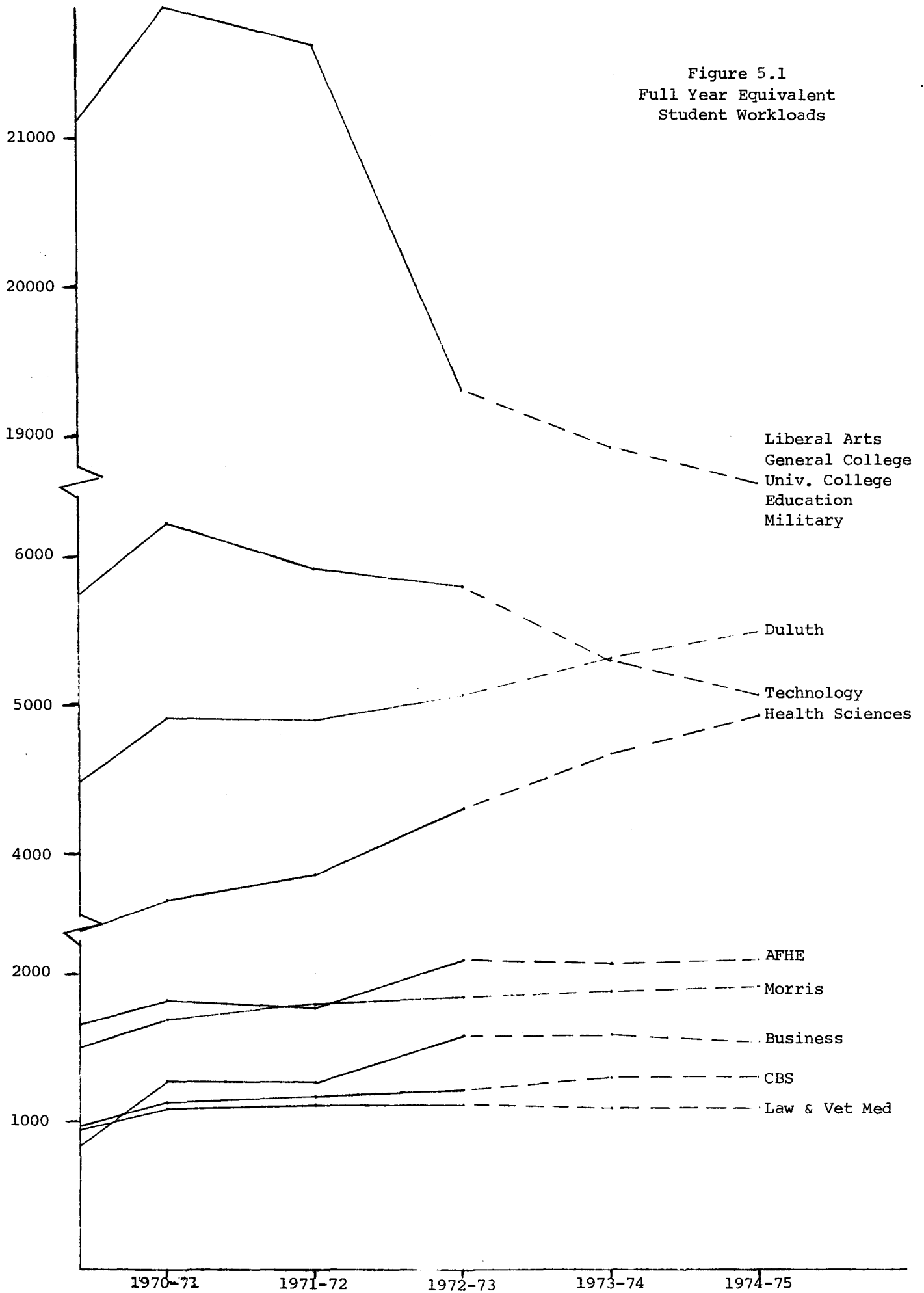
Figure 4.2
 Percentages of FYE Workload
 and Instructional and Departmental Research
 Expenditures to Total and Changes in
 Ratios Between the Two

	1970-71			1972-73			Change in Exp./WL Ratio
	Percent of Total		Exp./WL	Percent of Total		Exp./WL	
	Workload	Exp.		Workload	Exp.		
U. College and Military	.3	.3	1.00	.4	.4	1.00	-0-
Waseca	-0-	.2	n.a.	1.0	1.0	1.00	n.a.
Crookston	.9	2.0	2.22	1.5	1.8	1.20	-1.02
Morris	3.9	2.6	.67	4.2	2.7	.64	-.03
Duluth	11.2	7.8	.70	11.6	8.7	.75	+.05
General College	5.4	2.5	.46	4.6	2.3	.50	+.04
Business	2.9	2.9	1.00	3.7	2.8	.76	-.24
Education	6.1	8.0	1.31	5.9	7.1	1.20	-.11
Law	1.7	2.2	1.29	1.7	2.2	1.29	-0-
Vet. Med.	.7	3.0	4.29	.8	2.8	3.50	-.79
Biological Sciences	2.5	3.4	1.36	2.8	3.2	1.14	-.22
Health Sciences	8.4	15.2	1.81	10.0	19.5	1.95	+.14
AFHE	4.1	8.9	2.17	4.8	8.5	1.77	-.40
Technology	14.1	16.5	1.17	13.4	14.9	1.12	-.05
CLA	37.8	24.5	.65	33.6	22.1	.66	+.01
	100.0	100.0		100.0	100.0		

V.
Unit Workloads

The following graph indicates the five year FYE workload trend by major segments of the University. In all major units, including CLA, the trend is toward taking a smaller percentage of credit hour load in CLA and a larger proportion elsewhere.

Figure 5.1
Full Year Equivalent
Student Workloads



VI.

Health Sciences in Relation to Other Units

In addition to previous material, two graphs following illustrate the trend of Health Science expenditures and of expenditures for other activities.

Figure 6.1
 Proportion of Total State Funded Expenditures

% of Total
 Expenditures

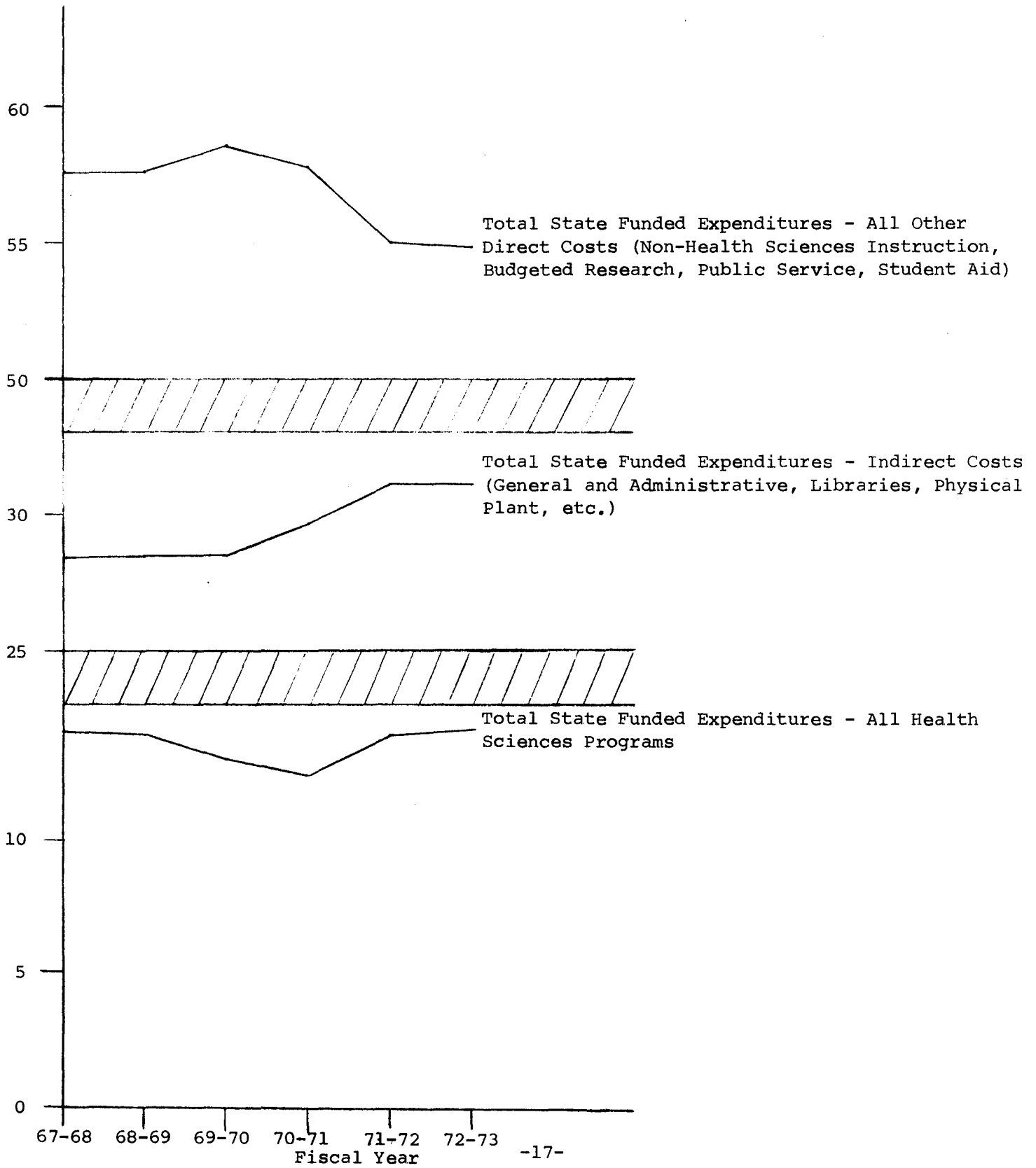
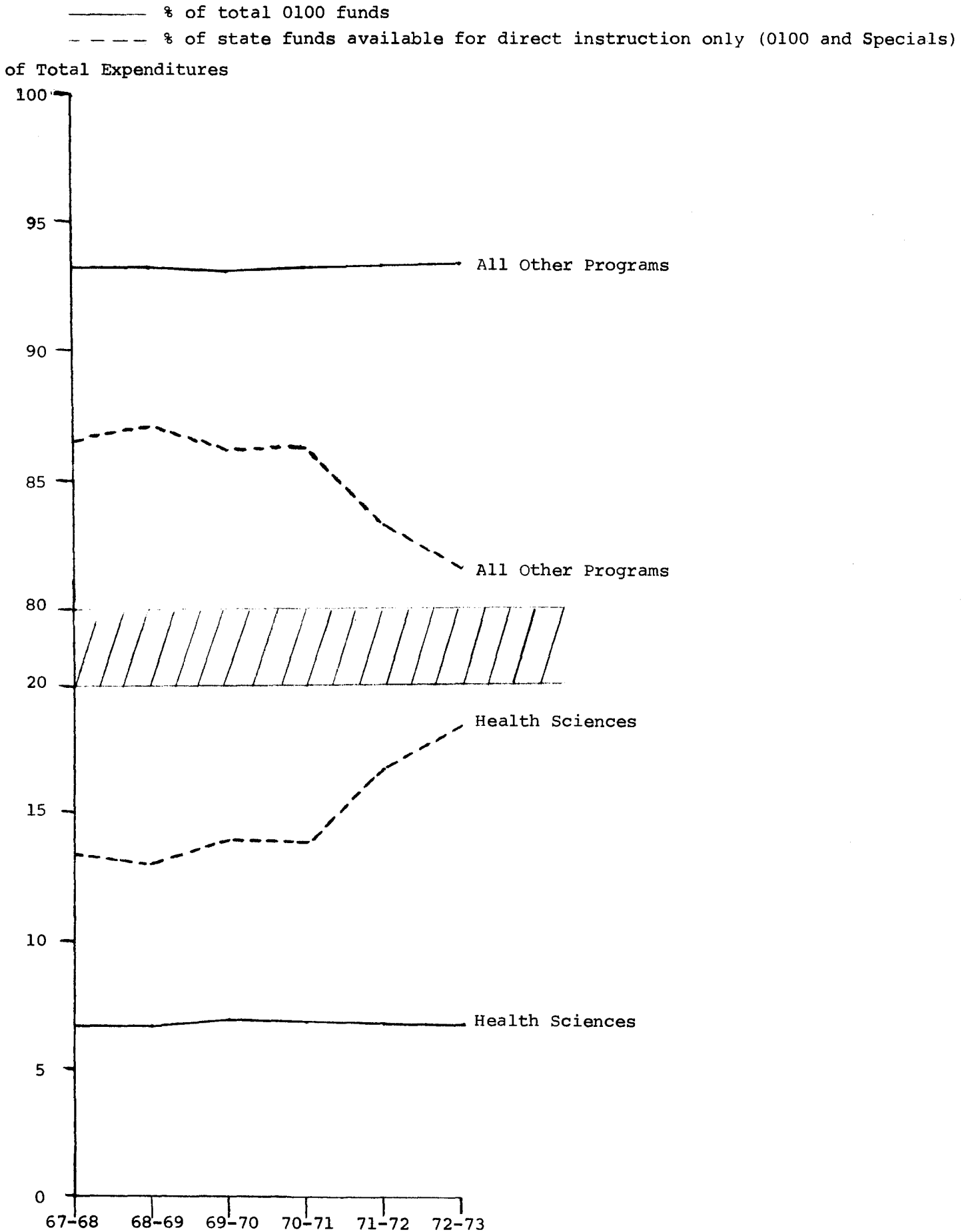


Figure 6.2
 Percent of Total Expenditures for Health
 Sciences and All Other Programs
 1967-68 through 1972-73



VII.
Expenditures by Major Function

Four pie charts follow, which indicate distribution of total funds expended for 1967-68 and 1972-73 by major function and budgeted 0100 funds for 1967-68 and 1973-74 by major function.

Because these pie charts are rather difficult to read and interpret, two additional graphs are supplied showing, respectively:

Trend lines for major function proportions of total expenditures.

Trend lines for major function proportion of 0100 budget.

Figure 7.1
 Functional Distribution of University
 of Minnesota Expenditures, 1967-68 and 1972-73
 All Funds

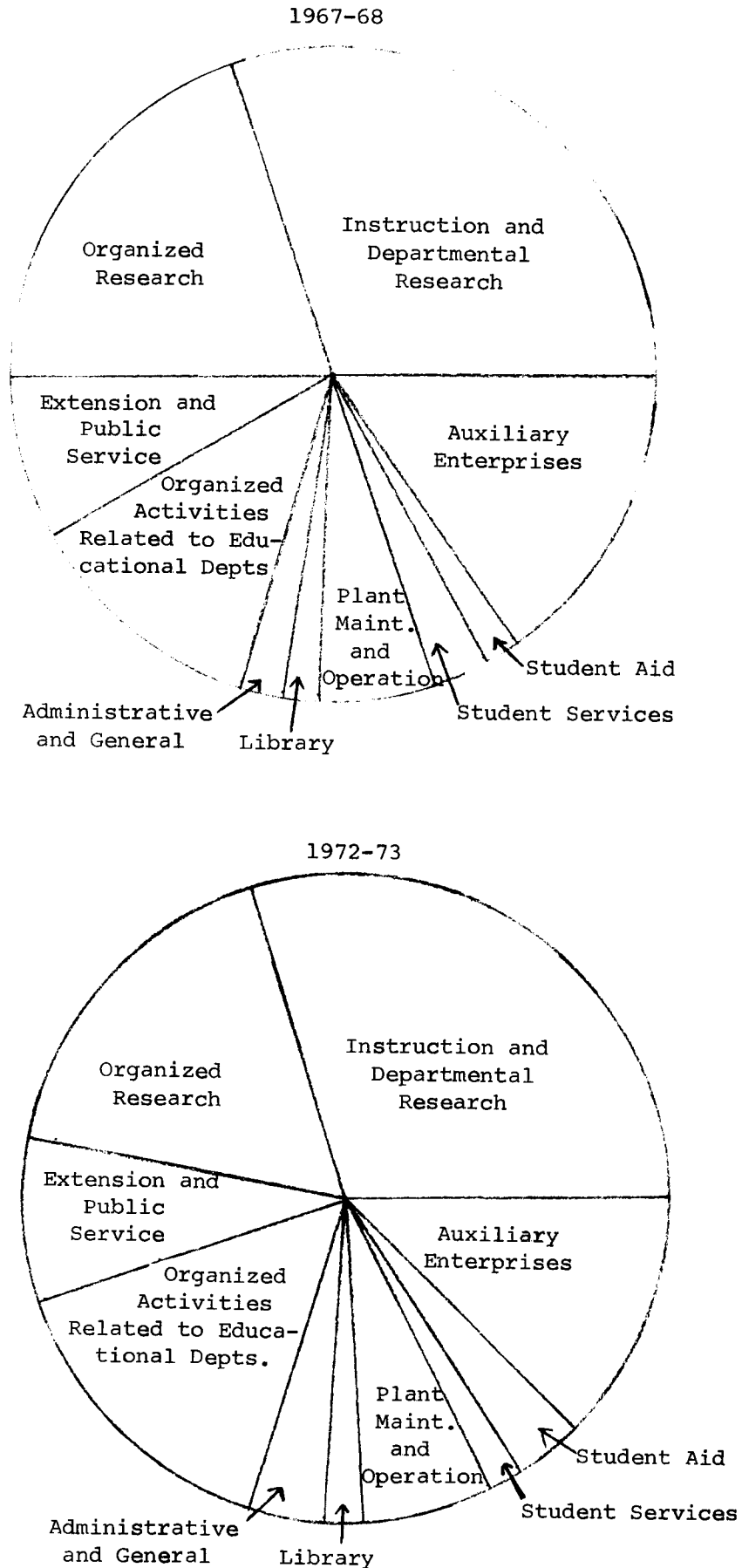
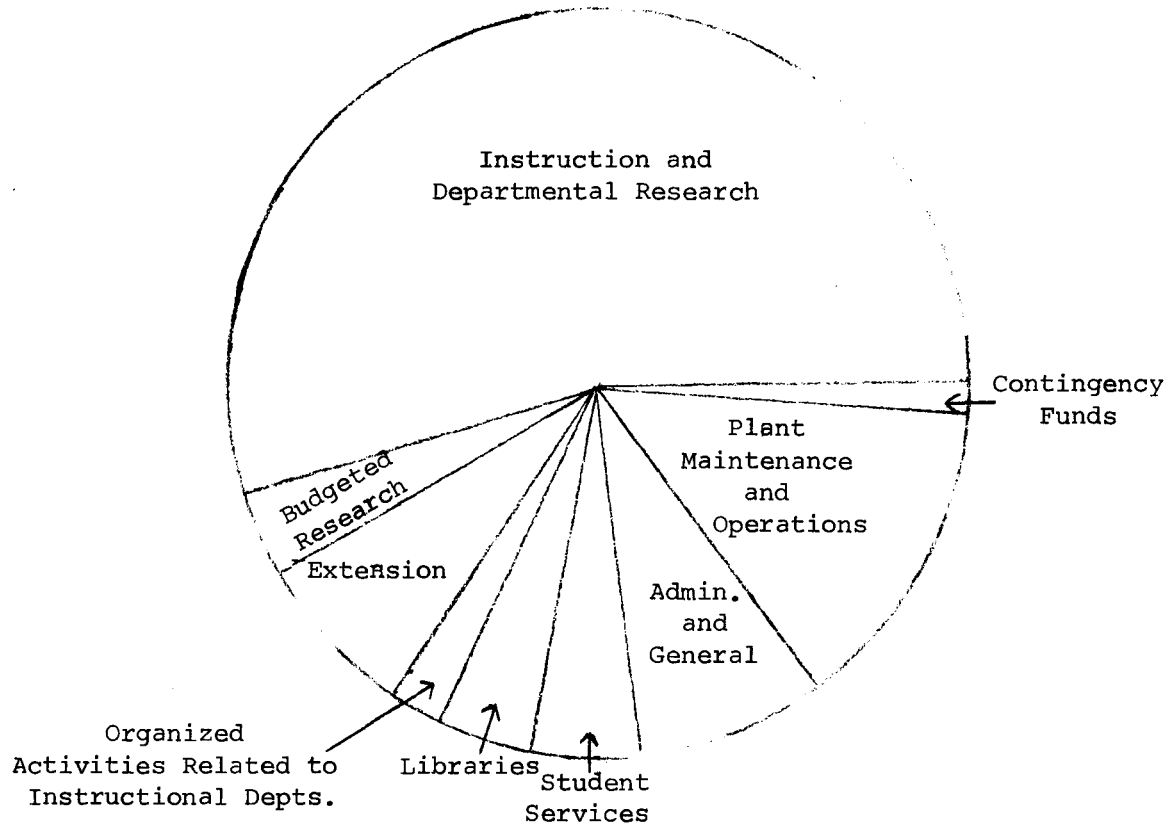


Figure 7.2
 Functional Distribution of 0100
 (Operations and Maintenance) Budget, 1967-68 and
 1973-74

1967-68



1973-74

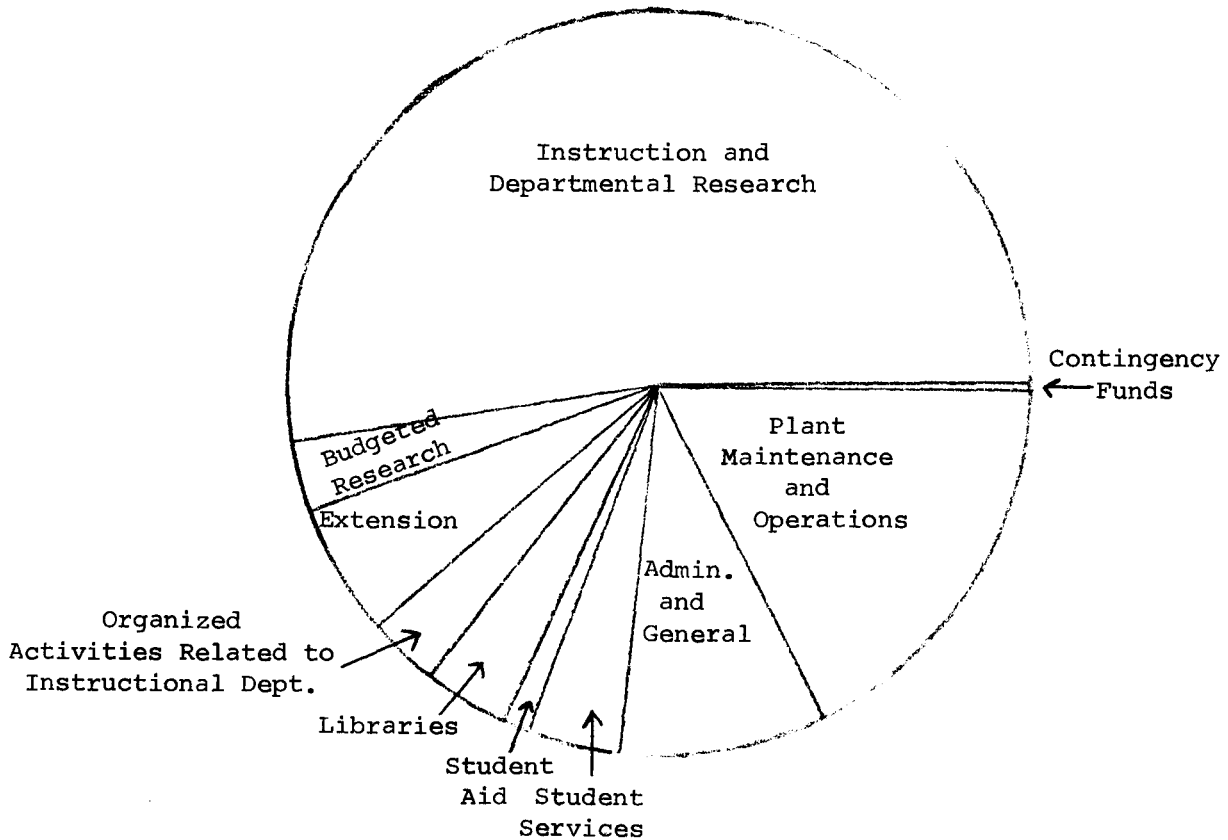
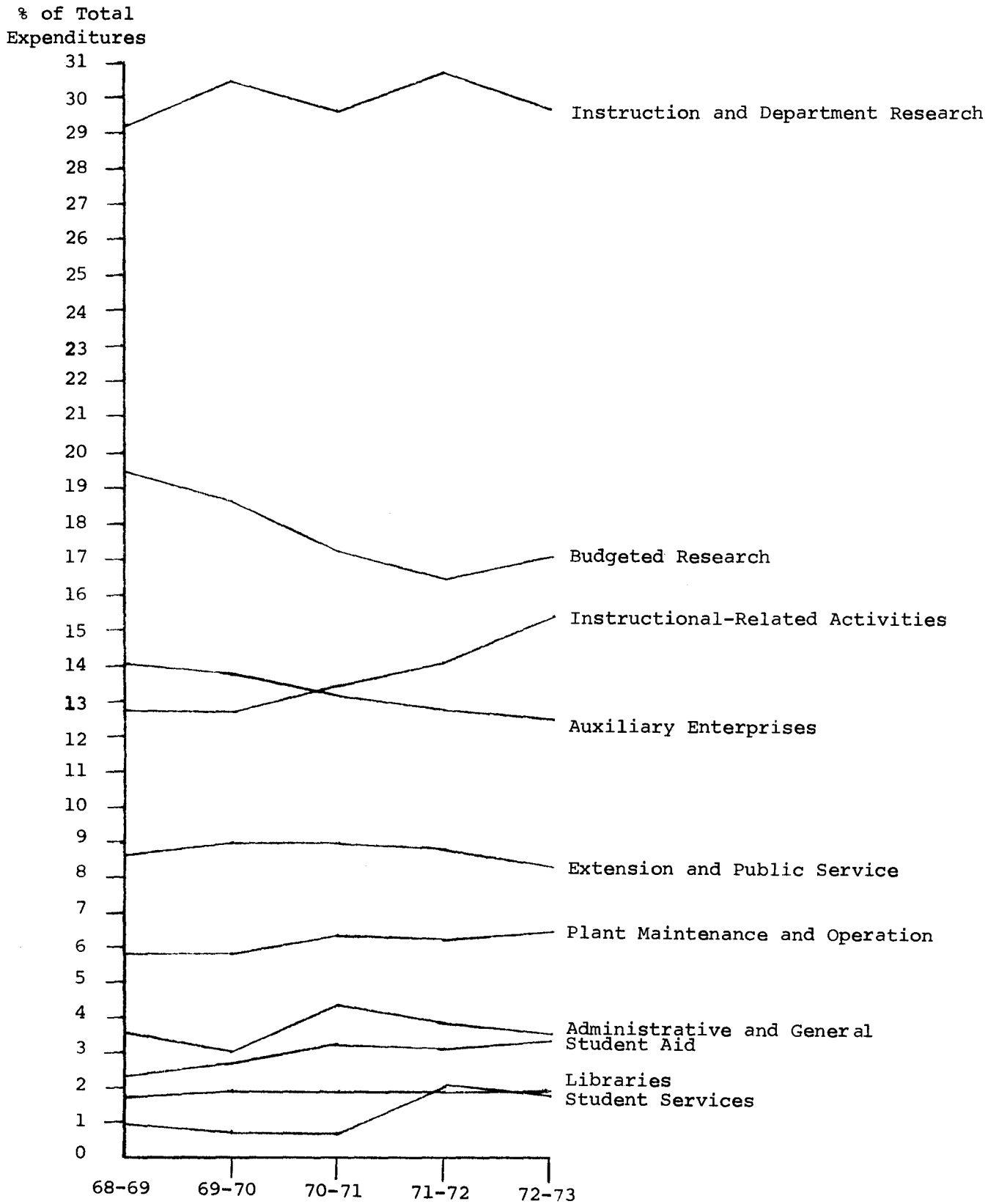


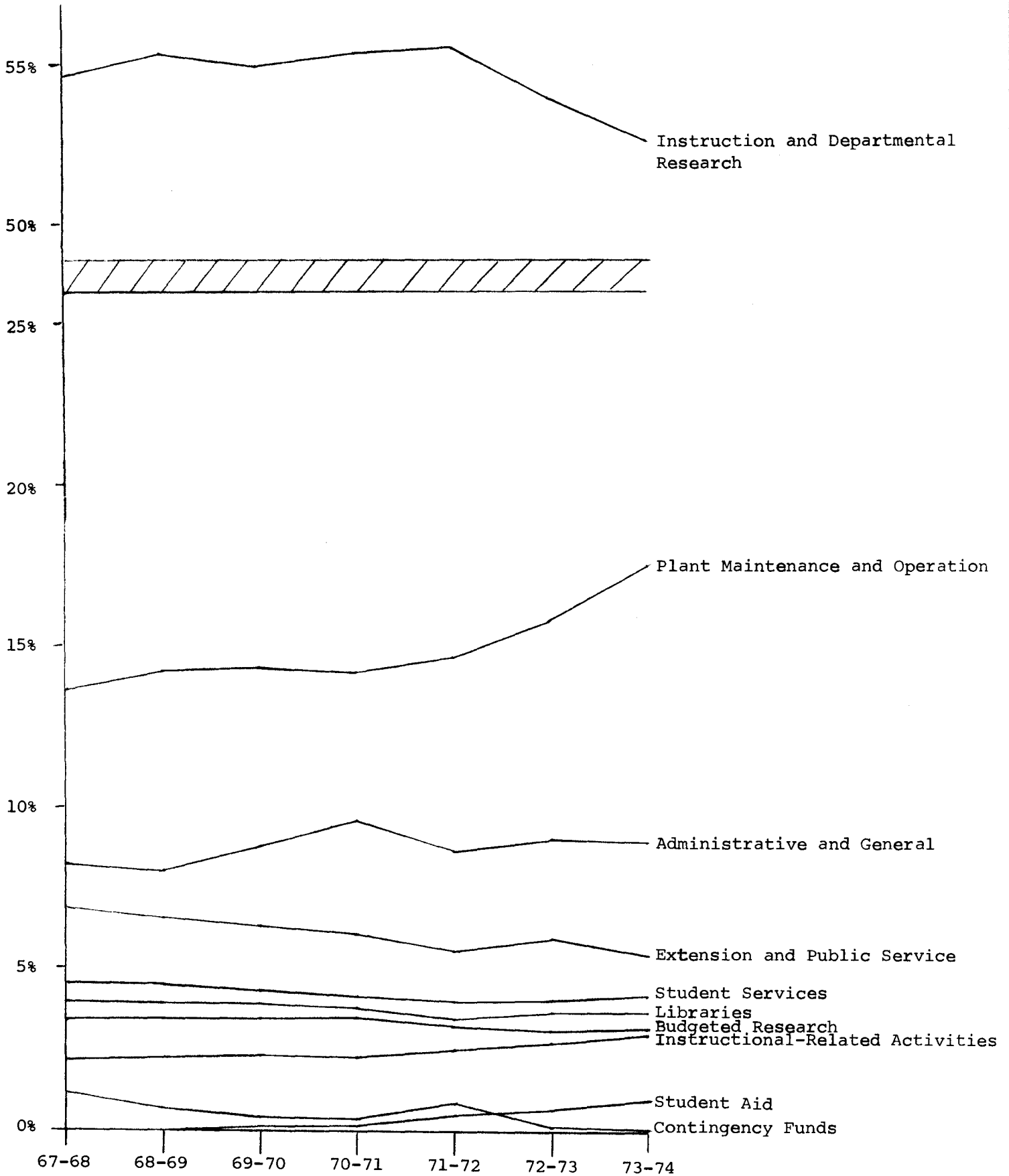
Figure 7.3
 Proportions of Total Expenditures
 By Major Activity



1% = \$2.0 Mil. \$2.3 Mil. \$2.5 Mil. \$2.7 Mil. \$2.9 Mil.

Figure 7.4
 Proportions of 0100 Budget Only
 By Major Activity

% of 0100
 Budget



1% = \$.7 Mil. \$.8 Mil. \$.9 Mil. \$1.0 Mil. \$1.1 Mil. \$1.1 Mil. \$1.2 Mil.

VIII.

Prospects for Duluth and Morris

A recent publication from CURA, "Public College Enrollment In Minnesota's Changing Population Pattern, 1970-1985," projects higher education enrollments from demographic data. It takes into account birth rate changes and the impact on future high school graduates, higher education entrance rates, retention rates, and service areas of the several institutions. The following projections for full time, undergraduate enrollments are included:

	1970		1975		1980		1985	
	Full Time Undergrad	Full Time Undergrad	% Change	Full Time Undergrad	% Change	Full Time Undergrad	% Change	
UMD	4,887	5,261	+7.7%	4,926	-6.4%	4,106	-16.6%	
UMM	1,656	1,771	+6.9%	1,665	-6.0%	1,470	-11.7%	
UMTC	32,031	35,496	+10.8%	36,885	+3.9%	31,828	-13.7%	

The total undergraduate enrollments and projections by the Office of Admissions and Records are as follows:

	1970		1973 Est.	
	Total Undergrad	Total Undergrad	Total Undergrad	% Change
UMD	5,429	5,450		+0.4%
UMM	1,716	1,650		-3.8%
UMTC	35,305	32,970		-6.6%

Although the latter data are inadequate to establish trends, the implication is that the predicted enrollment declines are being realized earlier than anticipated. It should be further noted that UMD has three additional special professional programs in growth stages while UMM has none.

If the Carnegie Commission recommendations on enrollment levels are sound, UMM and UMD may approach the minimum viable sizes:

	Recommended Range	1985 Enrollment Proj
UMD (Comprehensive College)	5,000-10,000	4,381*
UMM (Liberal Arts College)	1,000-2,500	1,470

*Includes 275 graduate and special professional

With numbers of high school graduates in the natural service areas beginning a decline (see graph) and higher education institutions in other areas increasing efforts to recruit their local students, the degree of enrollment decline for UMM and UMD could depend significantly on their increasing ability to attract metro area students.

In fact, UMD has been attracting increasing numbers of metro area students, a phenomenon which largely accounts for the remarkable way in which UMD enrollments have held up in contrast to enrollments in many other colleges which have, in recent years, fallen short of expectations. Duluth is now 3% below the Fall, 1969, level. This is a striking accomplishment given the large population outmigration from its natural service area, economic conditions there, and the very sharp drop in St. Louis County college entrance rates from 55.5% in 1965 to 42.9% in 1972. The only major source of UMD enrollment stability is new entering freshmen. Number of NEF rose 10.3% from 1967 to 1971, then dropped 6% from 1971 to 1972.

UMD is steadily moving from a regional college to a true University center. The percent of NEF from St. Louis County dropped from 65% in 1960 to 60% in 1967 and to 43% in 1972. The absolute number, however, increased from 577 to 613 in the same period. At the same time, NEF from Hennepin and Ramsey counties increased as a percentage of total from 4% in 1960 to 10% in 1967 and 24% in 1972. In absolute numbers, this represented an increase of nine times, from 39 in 1960 to 334 in 1972. (See table following for complete data.)

It seems likely that for metro area students who can pay only resident public tuition but wish to attend a diversified institution and desire a somewhat smaller school or a school at a distance from the family home, UMD furnishes a primary choice. This speculation is supported by some very tentative data indicating that freshmen attending UMD would mostly attend the State Colleges as a second alternative rather than U/M - Twin Cities.

The Minnesota-Wisconsin Tuition Reciprocity Agreement will surely have some noticeable effects on UMD. The University of Wisconsin at Madison may now become the alternative of choice for many metro area freshmen wishing to live away from home. On the other hand, UMD would seem to be a strong competitor for the previous natural service area of the University of Wisconsin-Superior. At this point there is no way to predict the results of reciprocity with any accuracy.

In the absence of major unanticipated changes, it appears that UMD will be able to maintain its undergraduate levels until 1975 if it can continue to increase the number of new entering freshmen from the Twin City area. After 1975 the decline in NEF from its natural service area will probably not be offset by any gains from the Twin Cities unless specific policy incentives are created to accomplish this.

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Figure 8.1
County of Residence of Full-Time New Entering Freshmen
at University of Minnesota/Duluth, 1960 and 1967-1972

		<u>St. Louis</u>	<u>Rest of Nat. Serv. Area</u>	<u>Henn. Ramsey</u>	<u>Rest of Metro Area</u>	<u>Rest of Minn.</u>	<u>Total Minn.</u>	<u>From Everywhere else</u>	<u>Ft NEF Grand Total</u>
1972	N	613	146	334	78	198	1369	50	1419
	%	43	10	24	5	14	96	4	100
1971	N	682	120	325	102	233	1462	46	1508
	%	45	8	22	7	15	97	3	100
1970	N	693	158	258	59	240	1408	51	1459
	%	47	11	18	4	16	97	3	100
1969	N	779	135	219	73	202	1408	36	1444
	%	54	9	15	5	14	98	2	100
1968	N	827	134	165	46	212	1384	37	1421
	%	58	9	12	3	15	97	3	100
1967	N	816	151	140	47	182	1336	31	1367
	%	60	11	10	3	13	98	2	100
1960	N	577	95	39	14	94	859	28	887
	%	65	11	4	2	11	97	3	100

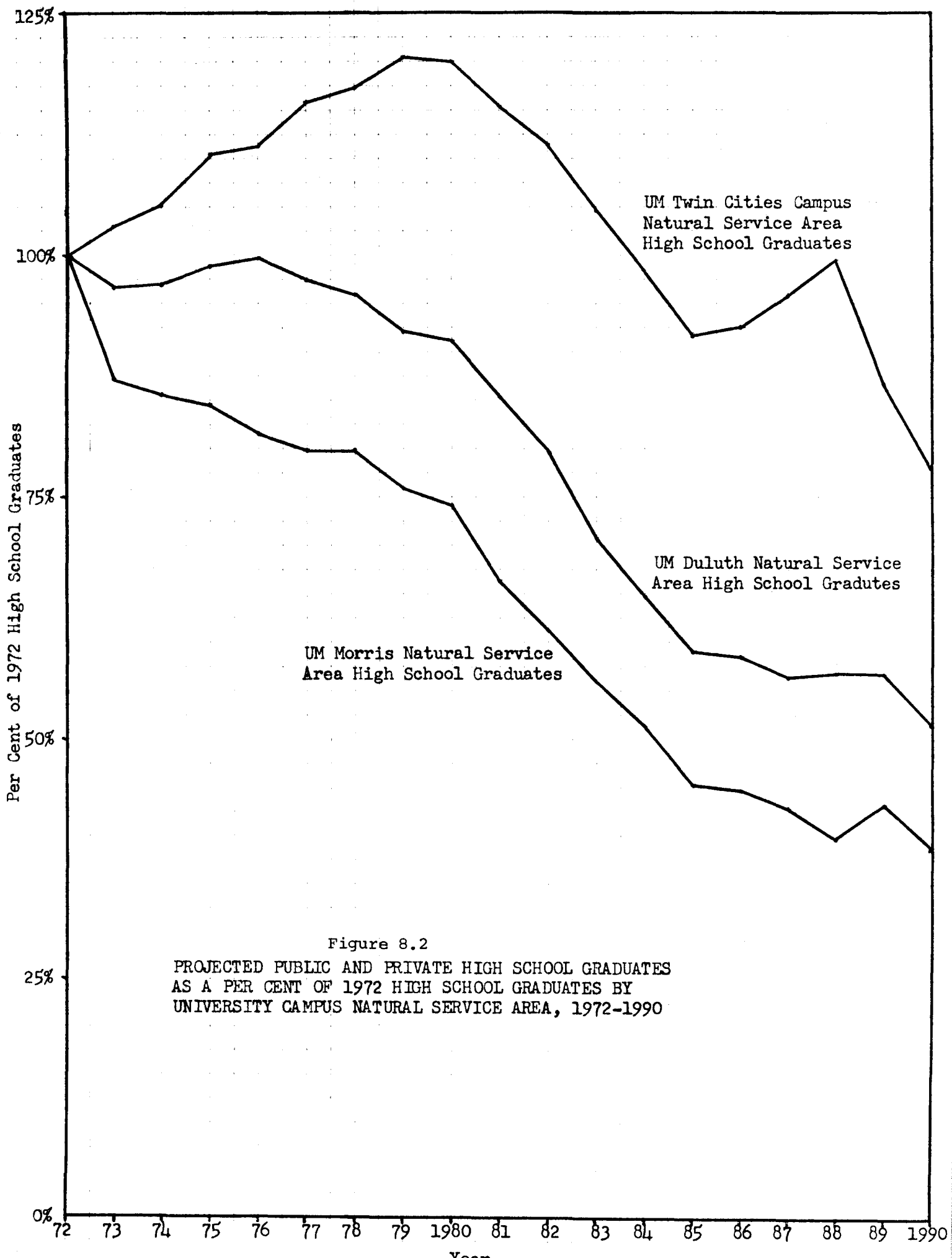


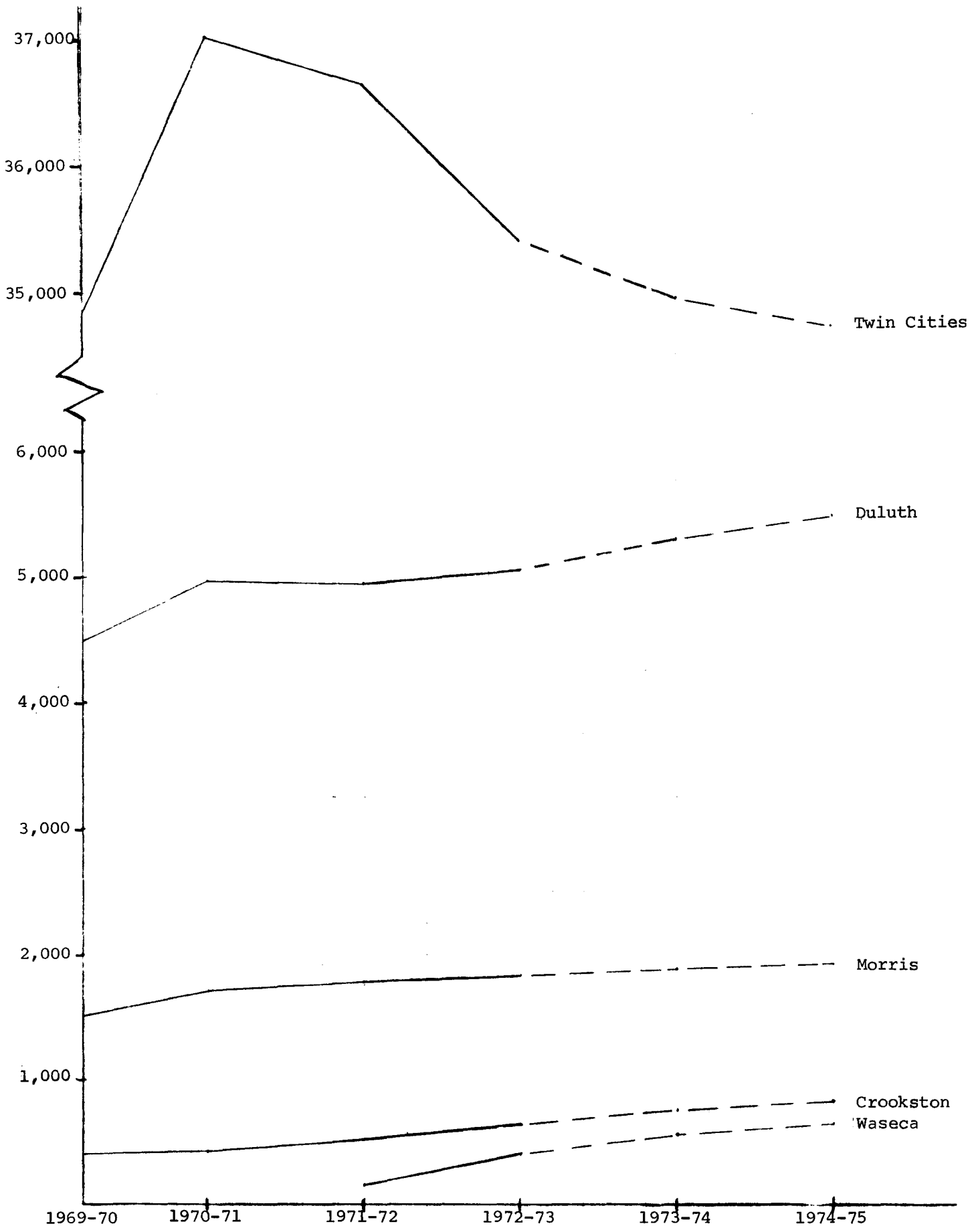
Figure 8.2
 PROJECTED PUBLIC AND PRIVATE HIGH SCHOOL GRADUATES
 AS A PER CENT OF 1972 HIGH SCHOOL GRADUATES BY
 UNIVERSITY CAMPUS NATURAL SERVICE AREA, 1972-1990

The factors vary somewhat at Morris but the question is similar - what will be the impact of declining numbers of high school graduates? Morris full time enrollment in 1970 was much less dependent on its natural service area - (31%) for students while more heavily drawing on the remainder of the outstate area (48%) which is also facing a decline in high school graduates. Morris draws a significant proportion (20%) of its full time enrollment from the metro area where projected declines are most moderate and occur further into the future.

The ability of the Morris campus to attract more students from the metro area would appear to be a major factor in maintaining enrollments at a viable level.

It should be noted that the foregoing comments are based entirely on projections of high school graduates and do not attempt to evaluate the effects of graduate and professional programs, change in rates of high school graduates who enter college, change in retention rates of enrollees, or policy changes such as tuition rate adjustments, admissions policies, policy changes by competing systems, part time and continuing education, etc.

Figure 8.3
 Full Year Equivalent Students
 by Campus



IX.
Productivity

One measure of productivity in a University is the salary cost per student credit hour taught. Figure 9.1 shows an eight year history of this series for the University of Minnesota. All dollar figures were inflated to 1972-73 dollar levels so the effects of inflation are not present except to the extent that salary inflation is differential among units. The salary expenditures include money paid to both academic and civil service personnel out of 0100 funds, Morrill-Nelson and Bankhead-Jones monies, and, for Morris, the state special appropriations for the earlier years.

Costs for the Law School include the Law Library and costs for the College of Business Administration include the Industrial Relations Center.

The costs for Agriculture, Forestry, and Home Economics are not adjusted to take the Institute's research activities into consideration. To do so would lower its costs by somewhat less than a third.

The category labeled "Medical Sciences" includes the costs and credit hours of Nursing, Public Health, and Mortuary Science.

Figures 9.2 and 9.3 graph the data of Figure 9.1. They are separate only to make the graphics clearer. Note that the all-University trend line appears on Figure 9.2.

Decreases in this series are often associated with increased student workload, affording the opportunity for economies of scale, as in the cases of Business, Biological Sciences, Pharmacy, and Dentistry. Conversely, declining workloads will tend to force increases, as in the cases of CLA and General College. Units such as Education and Technology, which have stayed quite steady in the face of declining workloads, are of interest, as are such units as Duluth and Medical Sciences which have increased in salaries per credit hour even though workloads have increased. (As suggested elsewhere in this report, the latter situation may have to do with high marginal costs.) One of the most interesting trend lines is Morris, which has declined in spite of relatively stable workloads.

Figure 9.1
SALARY COSTS PER SCH IN 1972-73 DOLLARS

<u>Unit</u>	<u>1965-66</u>	<u>1966-67</u>	<u>1967-68</u>	<u>1968-69</u>	<u>1969-70</u>	<u>1970-71</u>	<u>1971-72</u>	<u>1972-73</u>
Veterinary Medicine	\$92.56	\$101.10	\$114.77	\$101.48	\$108.12	\$99.42	\$89.47	\$95.12
Pharmacy	74.70	60.02	80.88	76.83	81.93	87.95	74.05	65.37
Medical Sciences	47.13	45.56	43.79	44.51	49.27	45.23	57.08	60.97
Agriculture, Forestry, Home Economics	64.81	65.43	71.67	71.58	67.40	65.01	61.81	56.42
Dentistry	66.65	77.47	79.82	84.84	90.38	81.53	70.59	52.90
Education	37.62	39.40	39.39	37.23	37.21	37.51	35.60	38.38
Biology	-	44.15	41.02	43.17	40.72	38.11	40.78	36.46
Law	38.31	32.16	36.57	44.80	42.24	32.53	32.83	34.50
Institute of Technology	29.40	30.53	31.62	32.28	32.80	31.84	31.44	31.85
Business	30.86	34.94	34.81	32.26	33.65	29.50	29.70	23.75
University of Minnesota-Duluth	16.12	16.91	16.96	17.55	18.19	18.24	20.25	21.11
College of Liberal Arts	14.98	15.88	16.45	16.92	17.72	18.66	17.06	19.40
Morris	22.93	22.26	24.12	21.12	18.25	16.79	16.68	17.55
General College	9.12	9.17	9.91	10.83	12.17	12.11	12.47	14.10
University	24.62	25.58	26.34	26.80	27.62	27.34	27.17	29.22

Figure 9.3
 Salary Cost per Student Credit Hour
 in 1973 Dollars
 Selected Units

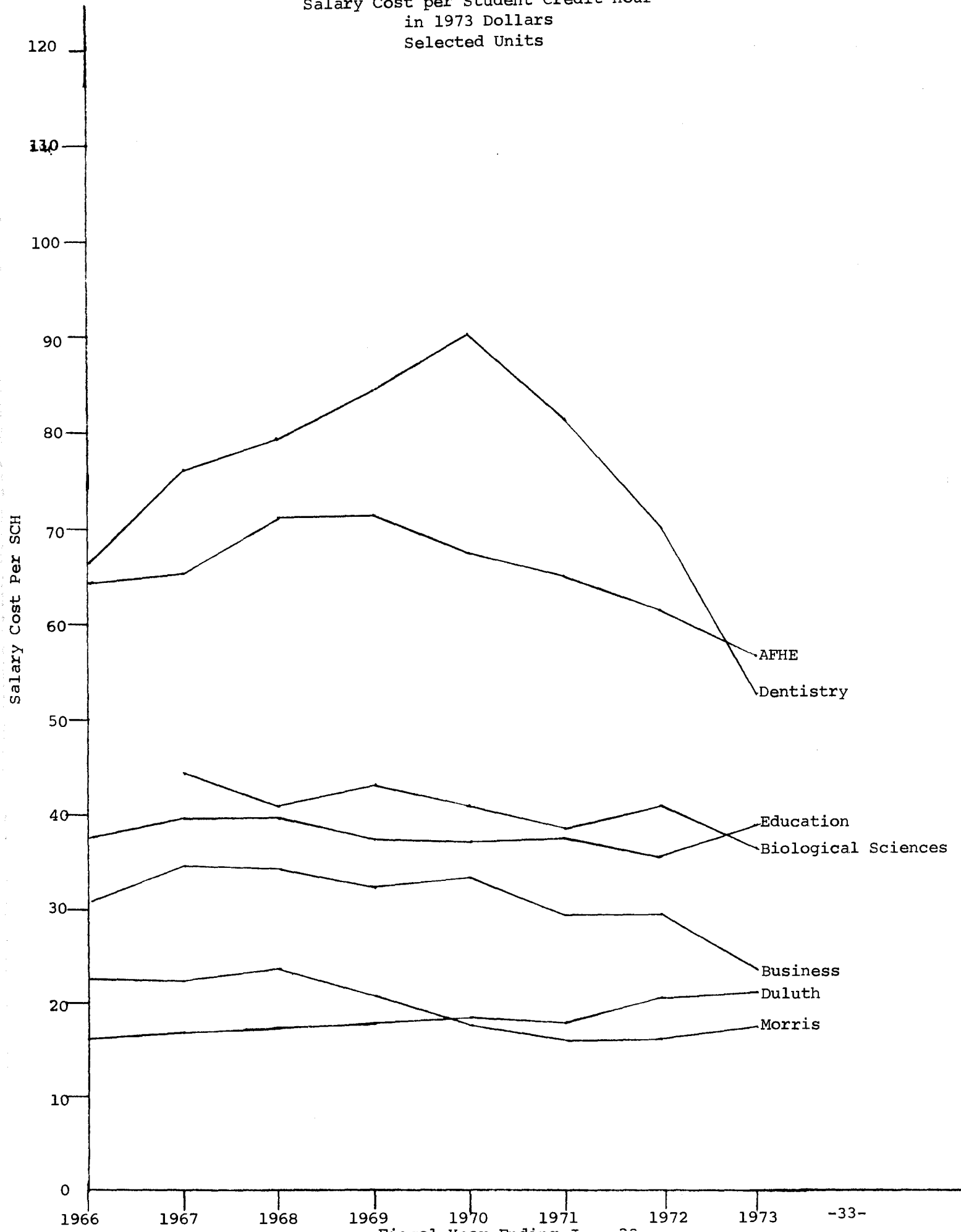
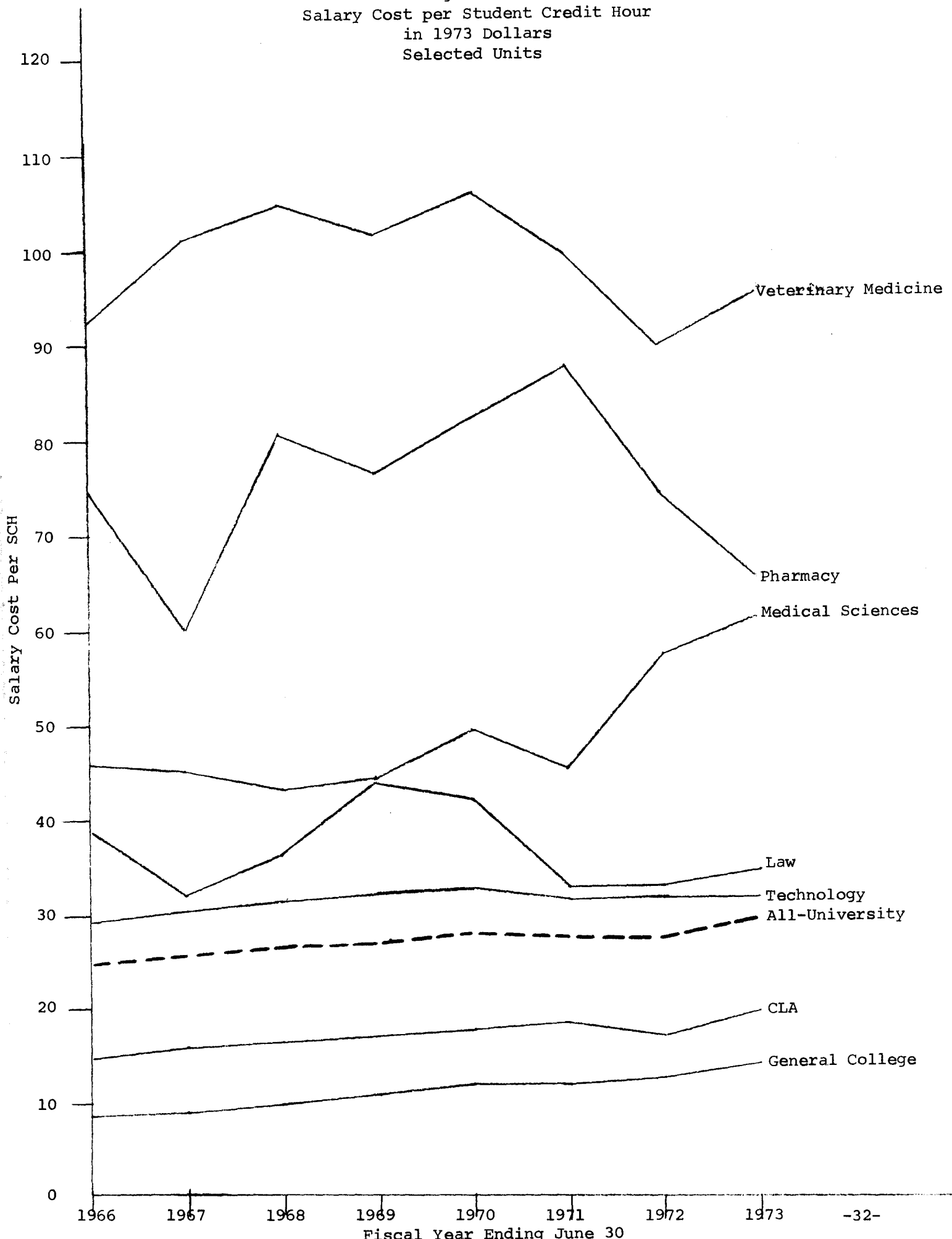


Figure 9.2
 Salary Cost per Student Credit Hour
 in 1973 Dollars
 Selected Units



X.
Libraries

Library expenditures have moved as follows in the past four years:

LIBRARY EXPENDITURES PER FYE, 1969-72

<u>Year</u>	<u>Total Expend.</u> ¹	<u>FYE's</u> ²	<u>Exp. per FYE</u>	<u>%[±]</u>
1969-70	\$4,578,099	41,252	\$110.98	-
1970-71	4,979,645	44,082	112.96	+1.8%
1971-72	5,272,270	44,051	119.68	+5.9%
1972-73	5,438,141	42,862	126.87	+6.0%

¹ Expenditures are for Twin Cities, Law, and Coordinate Campus Libraries. Includes all funds (0100, 0300, 0900). Data from University of Minnesota Libraries Annual Reports to the President, 1969-70, 1970-71, 1971-72. And Annual Accounting Report #2 June 30, 1973, the Business Office.

² Estimates per Information Services Division, September 4, 1973.

As a percentage of 0100 fund budget, the Libraries had declined in 1973-74 to 90.3% of their 1967-68 share. However, the percentage of Library expenditures to total University expenditures has remained at about 1.8% to 1.9% throughout the same period, indicating considerable reallocation to the Libraries function during the budget year in the more recent years.

It is interesting to note that the percentage of library funds spent on personnel has been steadily increasing while the percentage spent on acquisitions has steadily declined.

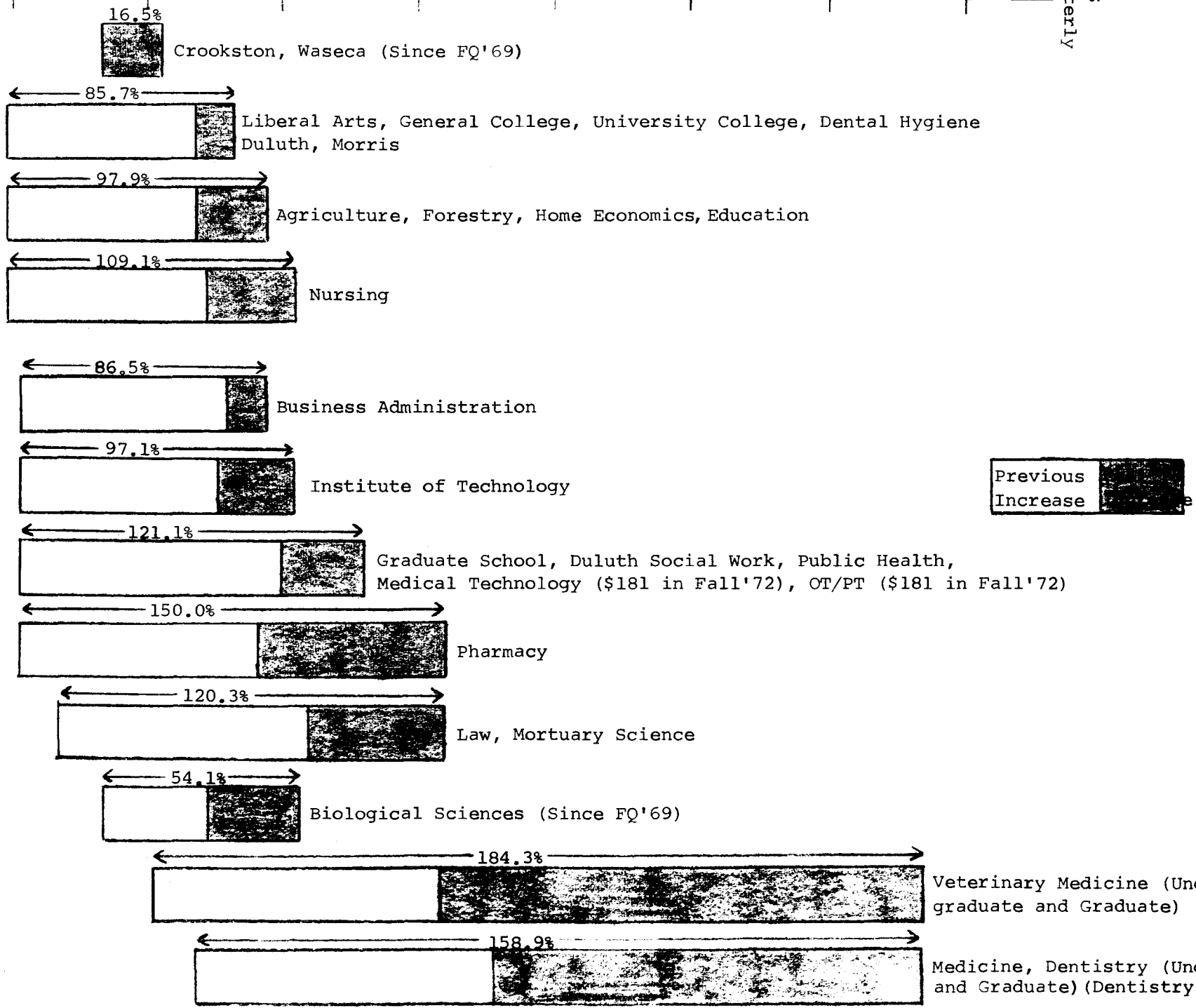
XI.
Tuition

In the academic year 1967-68, the overall percentage of HECC - defined instructional costs borne by students was 28.0%. By 1971-72, this percentage had declined to 26.5% actual. We have not yet determined what the 1972-73 actual percentage was but on the basis of the 1973-74 budget, it appears that we will again be in the area of 26.5%. By level and within units, the similar percentages vary widely, currently from around 11% for Medical Technology and Occupational and Physical Therapy to perhaps 37% in General College. The figure for lower division CLA would be higher, probably in excess of 40%.

While there were increases in all categories in the tuition plan introduced this fall, the intent is that the percentage of tuition to instructional cost for all units move toward the all-University average. Stated another way, increases were greatest in those units with a low ratio of tuition to instructional cost and least where that ratio is already high. Figure 11.1 gives a measure of tuition increases from Fall Quarter 1967 to Fall Quarter 1973 (or shorter period where the program has been established more recently).

Quarterly \$

100 150 200 250 300 350 400 450



Previous Increase

Figure 11.1
Increase in Quarterly Resident Tuition Rates FQ 67 to FQ 73 (Dollars and Percentage over Base Year)

XII.
Staff

While numbers of staff positions, by themselves, are of little analytic use and can, in fact, be misleading, sizes and distributions of payrolls over time can reveal certain trends and developments. Figures 12.1 through 12.5 indicate staff trends for the University during the past three years.

Figure 12.1 shows employee headcounts at each quarterly measurement date over the past three years in four classifications, i.e., students and non-students in civil service and academic classes. In addition "administrators" are shown separately, though they are also included in their appropriate places in the other four columns. For this purpose "administrators" includes the central officers, provosts, deans, and directors who are on the academic payroll and academic staff assistants to such officers. Also shown are the payrolls paid during the half month ending on the date shown. In general, these are semimonthly payrolls.

Figures 12.2 and 12.3 graph the information of Figure 12.1. Several points can be observed. Staffing levels, depressed by the formula retrenchment of 1971-72, recovered in 1972-73, reflecting the selective budgeting of the R & R process. In terms of number of jobs provided to students, civil service employment is more important than academic; the latter, however, are better paid.

Figure 12.4 deflates the data of Figure 12.3 to the salary levels of 1970-71 in order to reflect real changes in the personnel compensation factor for the University system. The changes shown in Figure 12.4 represent actual changes in staff available to carry out the work of the University. The non-student civil service has remained about the same throughout the period. The student civil service shrank during the 1971-72 retrenchment, then expanded in 1972-73, under reallocation, and almost recovered its 1970-71 level. Student academic employment declined about 5½% during 1971-72 and expanded slightly in the 1972-73 budget year. Academic non-student employment increased slowly but quite steadily throughout the three year period. Since the University's teaching workloads were declining, the implication is that more non-student faculty were available per Full Year Equivalent Student in 1972-73 than in 1970-71. Note, however, that all data include Health Sciences. Particularly in the clinical disciplines, staff expansions may not be related to an expansion in Full Year Equivalent Students, a measurement derived from course credits.

Figure 12.5 is a bar graph of Full Time Equivalent faculty in student and non-student categories as of the last day of February in each of the past three years. Again, the shift to non-student faculty is apparent. Taken in conjunction with Figure 12.1, the FTE data also show that student teaching employment has declined quite sharply.

Figure 12.1

UNIVERSITY OF MINNESOTA

Census of Employees

-39-

Pay Period Ending:	Headcount					Administrators	Earnings				
	Civil Service		Academic		Total		Civil Service		Academic		Total
	N. S.	Student	Student	N. S.			N. S.	Student	Student	N. S.	
July 15, 1970	8,688	3,342	1,930	4,000	17,960	112	\$2,567,336	\$448,806	\$466,220	\$2,547,513	\$6,029,875
October 15, 1970	9,268	4,092	3,266	4,978	21,604	113	2,695,160	309,402	611,466	3,126,049	6,742,077
January 15, 1971	9,205	4,318	3,415	5,073	22,011	114	2,701,706	316,000	596,280	3,124,267	6,738,253
April 15, 1971	9,319	4,505	3,491	5,072	22,387	116	2,667,499	304,087	612,307	3,157,896	6,741,789
July 15, 1971	8,801	3,094	1,800	3,974	17,669	123	2,591,889	411,119	450,130	2,641,476	6,094,614
October 15, 1971	9,231	3,654	3,051	4,925	20,861	124	2,696,658	282,483	599,181	3,225,598	6,803,920
January 15, 1972	9,298	3,977	3,221	5,041	21,537	127	2,929,085	302,332	594,813	3,297,539	7,123,769
April 15, 1972	9,306	4,283	3,341	5,110	22,040	127	2,886,451	316,968	605,295	3,345,998	7,154,711
July 15, 1972	9,080	3,279	1,936	4,064	18,359	128	2,928,111	451,293	501,653	2,839,153	6,720,211
October 15, 1972	9,600	4,346	2,915	5,188	22,349	130	3,126,408	337,654	633,428	3,603,250	7,700,739
January 15, 1973	9,688	4,712	3,335	5,400	23,035	135	3,132,986	333,665	622,421	3,593,875	7,682,948
April 15, 1973	9,759	4,943	3,453	5,408	23,563	134	3,123,590	360,138	644,902	3,659,598	7,786,228
July 15, 1973	9,383	3,230	1,918	4,152	18,683	133	3,239,134	468,970	512,193	3,019,881	7,240,178

Figure 12.2
 UNIVERSITY OF MINNESOTA
 Number of Employees

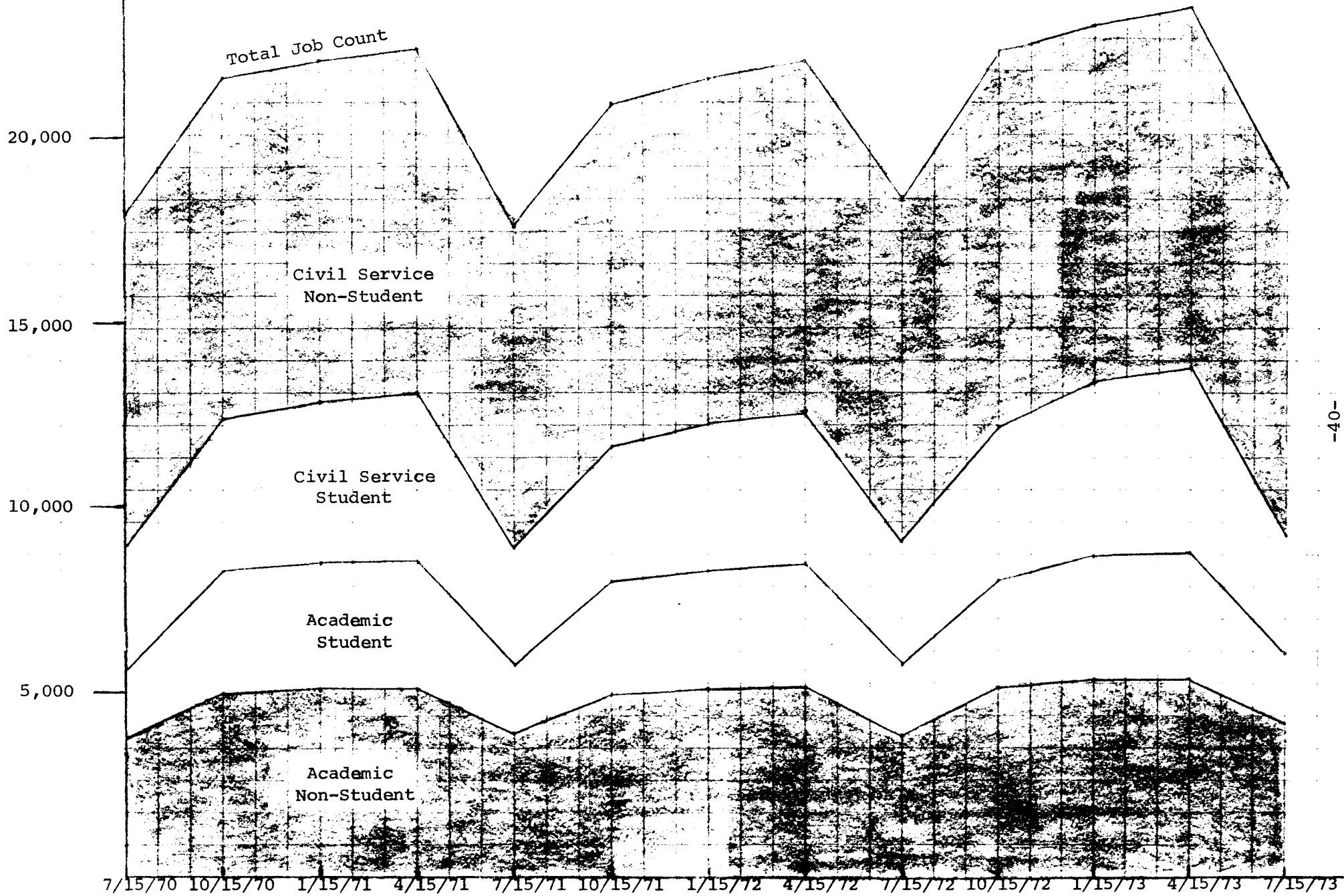
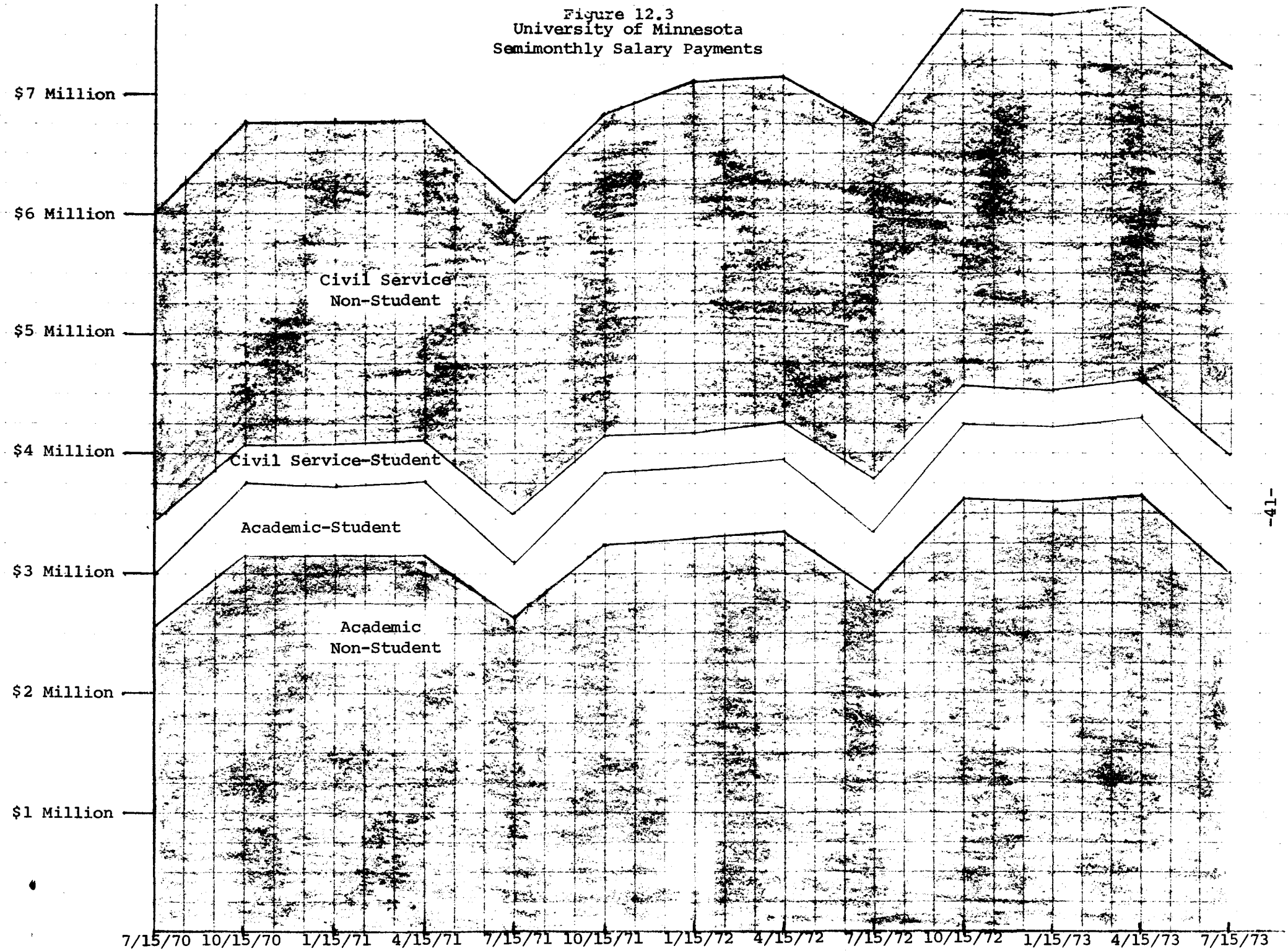
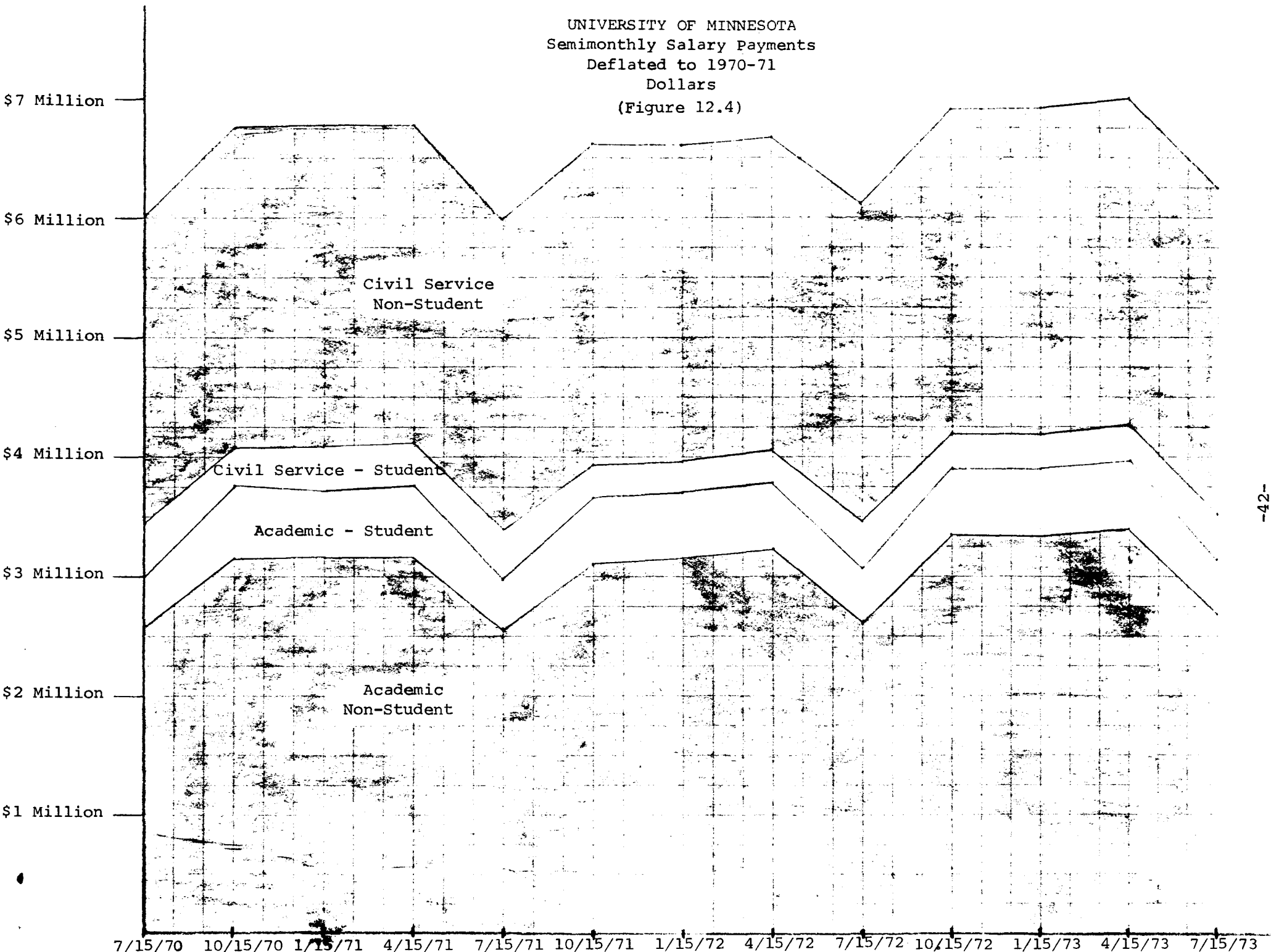


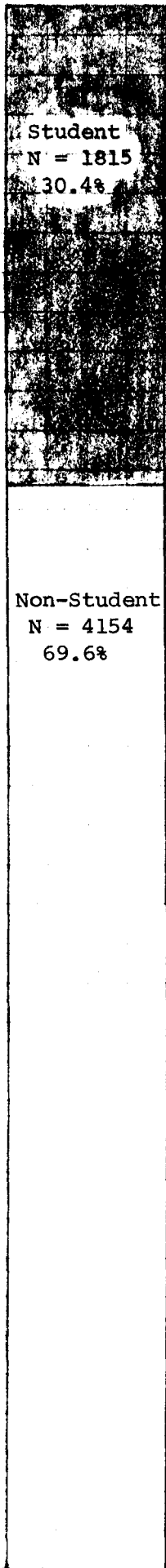
Figure 12.3
University of Minnesota
Semimonthly Salary Payments



UNIVERSITY OF MINNESOTA
 Semimonthly Salary Payments
 Deflated to 1970-71
 Dollars
 (Figure 12.4)

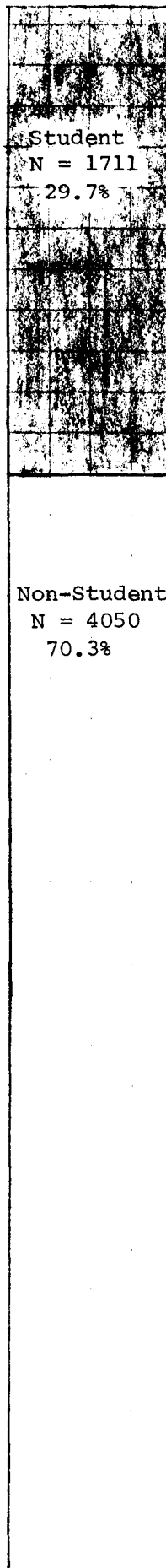


N = 5969



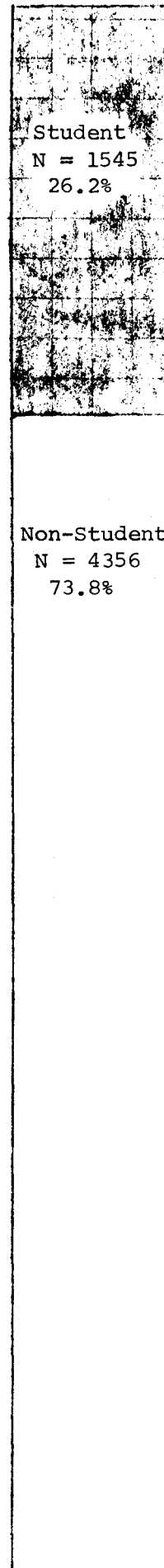
2/28/71

N = 5761



2/29/72
(Retrenchment)

N = 5901



2/28/73
(Reallocation)

Figure 12.5
FTE Faculty
End of February
1971, 1972, 1973

What does the foregoing data say about the questions asked in the introduction?

1. The University's share of state higher education appropriations paralleled its share of instructional workload fairly closely during the past ten years. Both declined slowly through most of the period, leveled off, and have begun to increase slightly. This says nothing about the proper relation between appropriations and workload. A similar analysis weighted by cost of program would show a substantial decline in appropriation related to workload.
2. Enrollment growth has been less rapid than envisaged in the 1970 "Regents' Statement on Higher Education in Minnesota." Probably a new set of planning goals should be agreed on. Little progress seems to have been made toward the goal of 50% effort in "unique or specialized undergraduate programs plus graduate and post-baccalaureate enrollments."
3. The last few years have seen a significant shift away from lower division instruction and into upper division, professional, graduate professional, and technical offerings. Non-professional graduate instruction has declined as a proportion of total, but is fairly stable in absolute terms since 1969-70.
4. In general, expenditure shares and workload shares have changed in the same direction through the recent retrenchment and reallocation budgets. However, expenditures typically have neither expanded nor contracted proportionally to workloads, but rather less than proportionally, as might be expected if marginal costs are less than average costs. There are some interesting exceptions to the rule.
5. Students are tending to select a greater proportion of their work in areas directly related to vocational goals. An exception is Technology (and there is recent evidence that its decline may be reversing). Both CLA students and students from other colleges are taking less work from CLA.
6. Over the past five years, about 5% of the University's state direct instructional expenditures have shifted to Health Sciences from all other instructional programs.
7. Over the past five years, the University has continued to devote about 30% of its total expenditures to direct instruction and departmental research. Budgeted research has declined in the same period. Instructional-related activities (reflecting mainly the Hospitals) have risen substantially, as has student aid. Administrative and general expense has been in the 3% - 4% area throughout. Libraries are quite constant. Plant Maintenance and Operation is in a steady rise. Looking only at the Operations and Maintenance budget, instruction and departmental research has

declined somewhat recently while Plant Maintenance and Operation has risen quite sharply. Student aid has become a significant factor. Contingency funds have virtually disappeared.

8. Duluth and Morris are faced with sharp declines in freshmen from their natural service areas and will have to increase their attraction of metro area students if they are to maintain enrollments.
9. Productivity as measured by salary cost per student credit hour has declined slightly in the past seven years. However, this series varies widely by instructional unit. Furthermore, it assumes that the value of the services rendered the student is constant throughout, which is unlikely. Clearly, however, the University's productivity has not declined in any substantial way over this period.
10. Funds actually expended per FYE student for the library function have increased about 14.3% over three years, probably not enough to keep pace with inflation. As a percentage of total expenditures, library expenditures have remained about constant.
11. The University's de facto policy is to increase tuitions proportionally more in high cost programs to the extent that tuition must be increased. A corollary policy is to increase tuitions selectively in such a way that a minimum number of students will be denied access for economic reasons.
12. University staff has remained relatively constant through the retrenchment and reallocation period. The only clear trend is toward increased reliance on senior academic staff and decreased use of teaching assistants. This will tend to increase average costs.

Overall, what does University Trends reveal?

It pictures a University which has been gradually moving from a position of dominance in all areas of Minnesota collegiate education toward a shared mission with the other systems, particularly at the undergraduate, non-professional level. While no major instructional program has been eliminated, a shift toward upper division, professional and graduate programs has been occurring slowly. That shift has not been dramatic enough to fix attention on it in any single year or biennium. Yet it has been substantial when viewed over a span of several years, and in terms of a percentage of total workload.

In much of the data it is obvious that the University is engaged in a struggle to adjust to declining workloads in units where the marginal cost is far below average cost and where, as a result, average cost tends to increase as workloads decline. At the same time, the units with increasing workloads tend to have rather high marginal costs, as in Health Sciences, thus making it impossible to finance expansion completely from decline even if resource substitution frictions such as tenure and the difficulty of faculty retraining did not restrict the possibility.