130998

United States General Accounting Office

Washington, D.C. 20548

FOR RELEASE ON DELIVERY

EXPECTED AT 9:30 A.M.

TUESDAY, SEPTEMBER 16, 1986

STATEMENT OF

SARAH P. FRAZIER, ASSOCIATE DIRECTOR

RESOURCES, COMMUNITY, AND ECONOMIC

DEVELOPMENT DIVISION

BEFORE THE

HOUSE COMMITTEE ON SCIENCE AND TECHNOLOGY

ON

UNIVERSITY FINANCES:

RESEARCH REVENUES AND EXPENDITURES

Mr. Chairman and Members of the Committee:

We are pleased to be here to discuss our recently issued report, University Finances: Research Revenues and Expenditures (GAO/RCED-86-162BR, July 11, 1986) that was requested by this Committee. Because the United States relies on universities for the training of scientists and engineers and for half the nation's basic research, the financial condition of these institutions and their capacity to carry out their missions are of vital concern. Our report examines how federal funding for

034684

research fits into the total finances of a random sample of 28 major research universities between 1975 and 1984.

In brief, we found that because federal support for universities increased at a slower rate than other revenues between 1975 and 1984, the federal government ended up providing a smaller portion of university research revenues, overall operating revenues, and physical plant funds at the end of this period. Tuition and fees, auxiliary university sources, and private sources provided an increased share of university revenues. Major differences existed between public and private universities' funding sources, as we describe later.

Federal funds still accounted for about two thirds of university research revenue. Although industry funding of research more than doubled in constant dollars from 1975 to 1984, it still accounted for less than 6 percent of research revenues for both public and private universities.

In my statement, I will discuss some of our findings grouped into the following categories:

- revenues and expenditures for operations and physical plant,
- revenues for research and development,
- indirect costs for research and development, and
- perceptions of academic executives on their research capabilities under alternative levels of federal funding.

These categories and the data within them were chosen in consultation with various experts on university finances.

REVENUES AND EXPENDITURES FOR OPERATIONS AND PHYSICAL PLANT

In order to place in context the information on research finances, we first reviewed the overall trends of university revenues and expenditures. Overall, during this period university operating revenues and expenditures have increased faster than the rate of inflation. The research universities in our sample increased their operating revenues, on average, by 37 percent, from $284 million[1] in 1975 to $389 million in 1984. Educational and general revenues (contributing about two thirds of operating revenues) increased 25 percent, while "auxiliary and other sources" of revenue (accounting for about a third of operating revenues) increased 66 percent.

Educational and General Revenues. Tuition and fees was the fastest growing portion of educational and general revenues, increasing 48 percent from 1975 to 1984 for our overall sample. In contrast, federal grants and contracts (including research and student aid) was the slowest growing component, growing by 8 percent for this period.

The proportion of all educational and general revenue provided by the federal government has decreased for both public and private universities. The federal portion of public university funds decreased from 26 percent to 22 percent, while for private universities the drop was from 36 percent to 32 percent. Thus, as shown by figure 1, federal grants and

[1]All of the dollar amounts and percent changes in this statement are in constant 1984 dollars, unless otherwise noted.

contracts slipped from being the largest source of educational and general revenue for private institutions in 1975 to the second largest source in 1984, behind tuition and fees. They were the second largest source of revenue for public universities in both 1975 and 1984.

As the previous discussion has indicated, public and private universities receive significantly different portions of their educational and general revenues from each source. These differences are also shown in figure 1. Public universities depended on state appropriations for almost one half of their educational and general revenues in 1984. Private institutions, which receive little state support, relied on tuition and fees as their largest source, accounting for 43 percent of educational and general revenues. In addition, tuition and fee revenue of private institutions increased significantly faster than for public institutions.

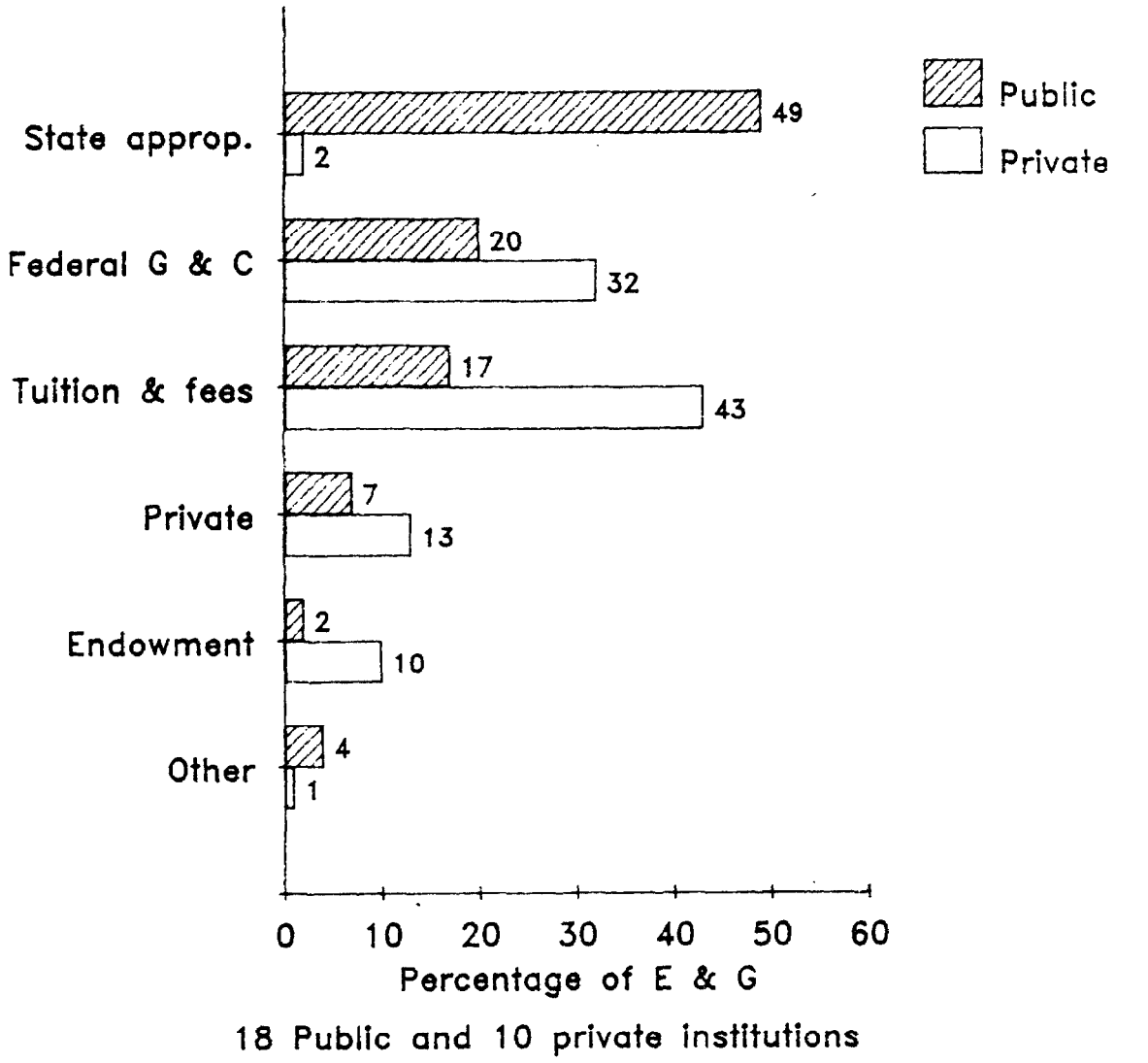
Auxiliary and Other Revenues. Universities increased their income from auxiliary and other sources[2] at a faster rate than from their educational and general revenue. "Auxiliary and other" income rose, on average, 66 percent, increasing from an average of $82 million in fiscal year 1975 to $136 million in fiscal year 1984.

---

[2]This category includes dormitories, hospitals, and sales and services from other educational activities.

Figure 1

Sources of Educational and General Operating Revenues, Public and Private Universities[a] (1984)



[a]Percentages do not add to 100 because of rounding.

Educational and General Expenditures. Direct costs for instruction and sponsored research accounted for almost 60 percent of educational and general expenditures in 1984 (fig. 2). However, the shares of both of these categories declined slightly from 1975, as administrative expenditures, operations and maintenance, and the "other" category all gained a small share of expenditures.[3]

Physical Plant. As noted in previous committee hearings, there has been great concern about the adequacy of scientific facilities in universities. These facilities are included in our physical plant category. In current dollars, universities increased their physical plant book value an average of about $20 million annually from 1981 to 1984. (This increase is essentially the sum of renovation and new construction.) The share of this increase that went for research facilities each year ranged from 10 to 33 percent.[4]

Federal and state revenues as proportions of total physical plant revenue decreased from 1975 to 1984 while private gifts and institutional sources rose (fig. 3). Other institutional sources are university internal funds from unrestricted money originally given to the university from other sources that could

---

[3]The "other" category includes public service, scholarships and fellowships, and mandatory transfers, but not federally funded research and development centers, which are excluded from this study.

[4]These data are from 10 public and 4 private universities. The 33 percent increase in one year was due in part to large increases for several institutions.

Figure 2

Educational and General Expenditures
(1984)

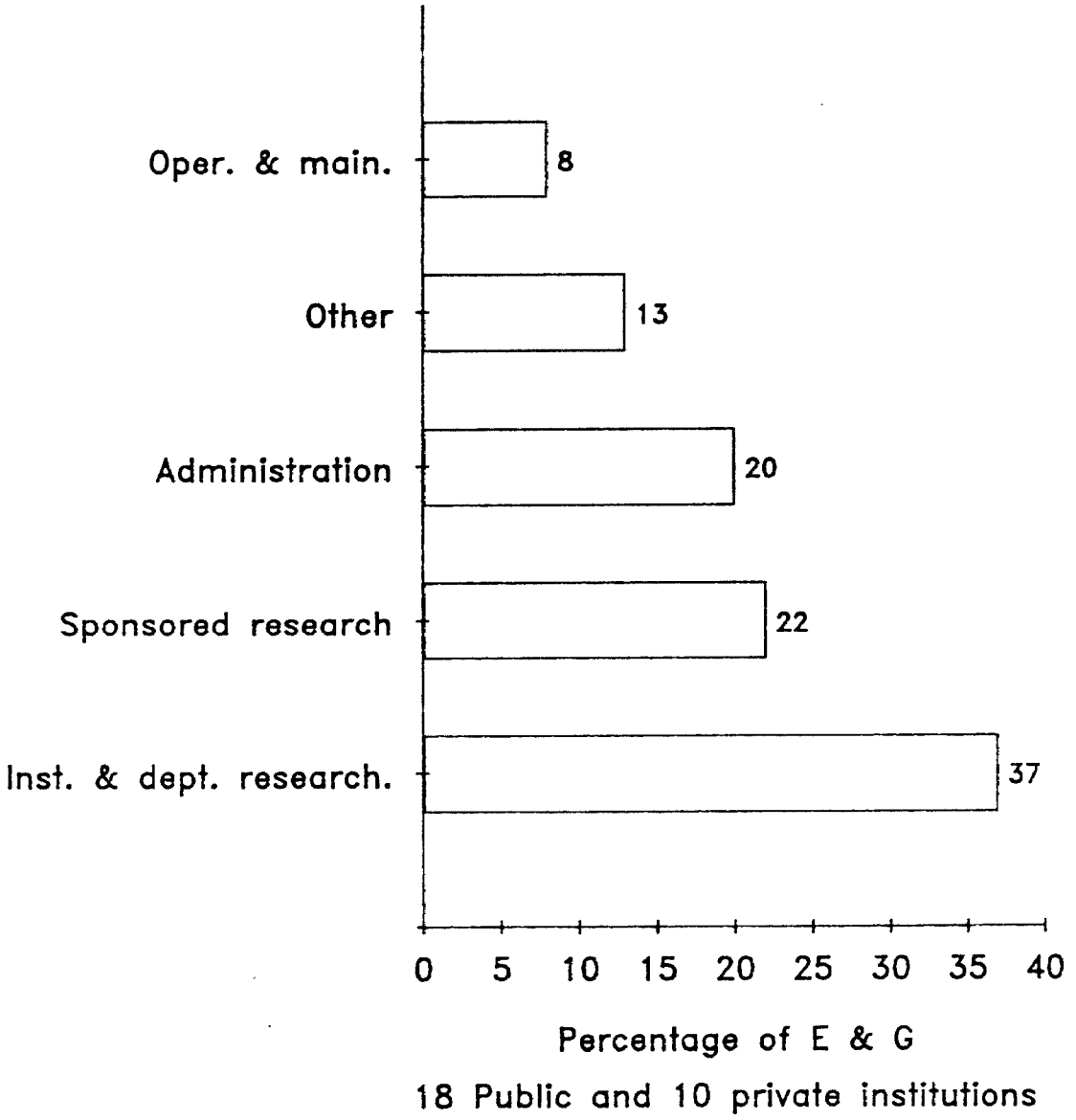
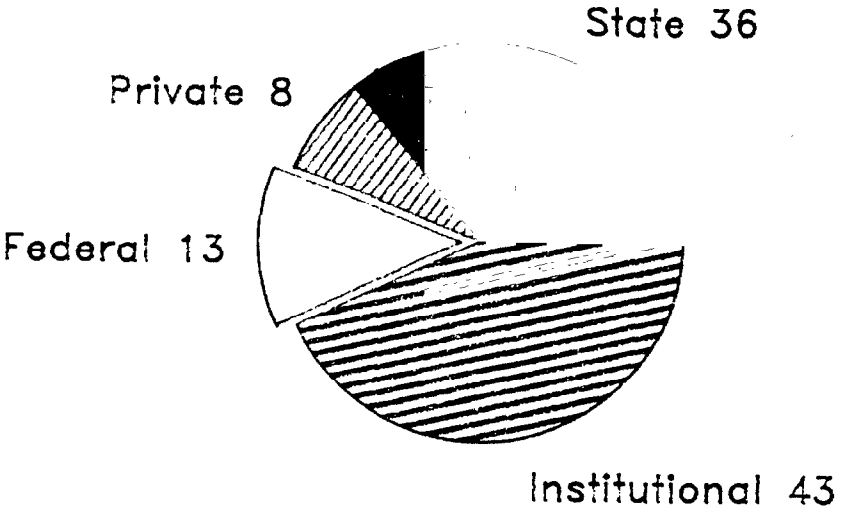
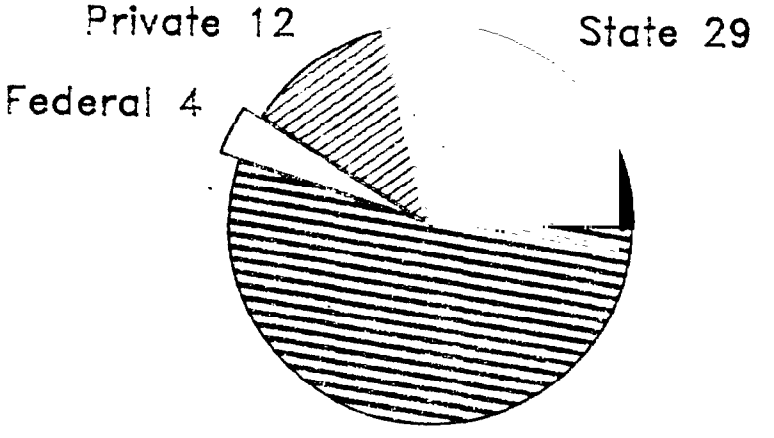


Figure 3

Sources of Physical Plant Revenue[a]
(1975, 1984)



1975



1984

10 Public and 8 private institutions

[a]Sources are reported as percentages.

not be distinguished because of the pooling of general unrestricted operating funds.

The other institutional funds category remained the largest source for physical plant support. This category consistently accounted for about 70 percent of private universities' overall physical plant revenue while for public universities it gradually increased from 35 percent to 45 percent.

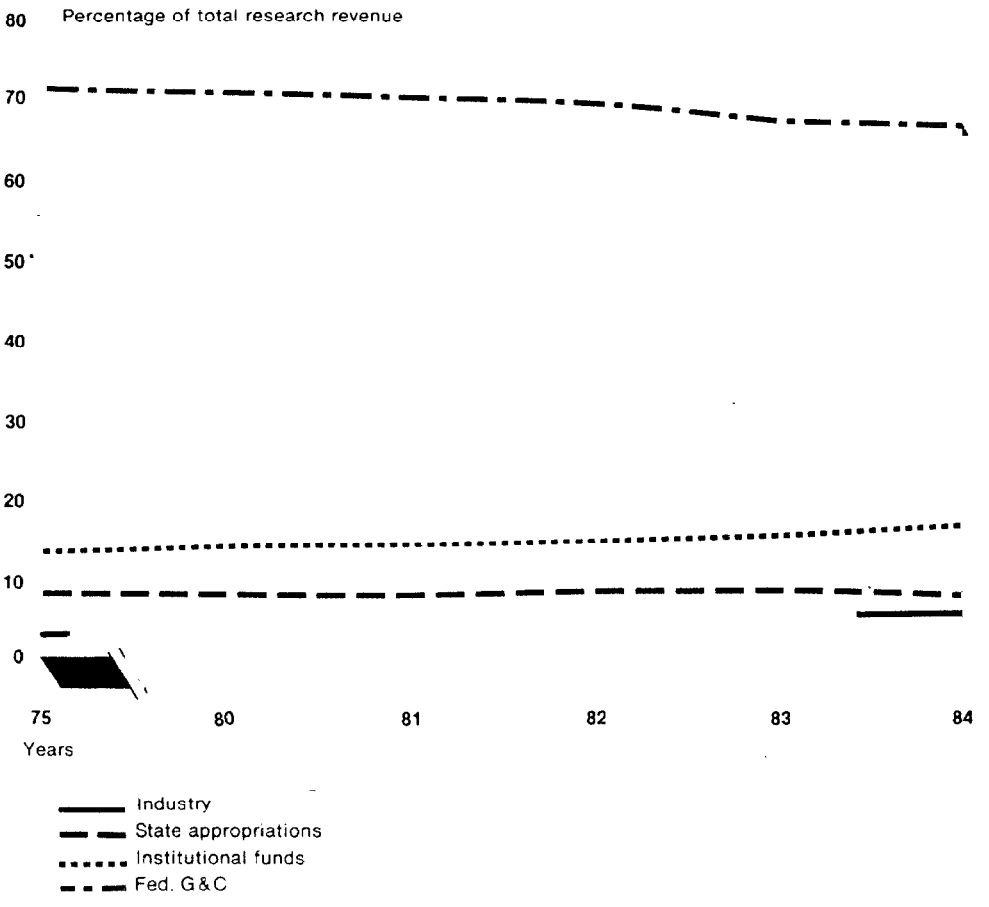
As expected, public and private universities differed significantly in the level of state support for physical plant. Public institutions received about 45 percent of their plant revenue from state sources for both 1975 and 1984, while private universities received nothing from these sources.

REVENUES FOR RESEARCH AND DEVELOPMENT

At a time of increasing costs of scientific research and tightening budgets, this committee and others have expressed concern over trends in research revenues and the composition of those revenues. The federal government continued to dominate as a provider of research revenues in 1984, accounting for over two thirds of the funds. However, the growth in federal funding increased more slowly than most other sources, resulting in a decline in the federal share of research revenues (fig. 4). Average federal funding rose from $41 million to $50 million per institution.

Figure 4

Research Revenues by Source
(1975, 1980-84)



13 Public and 8 Private Institutions

Average industry research funding more than doubled, from $2 million to $4.5 million, per institution. However, industry funding still only amounted to about 6 percent of overall research revenue in 1984.

University support for research from other institutional funds increased from 14 percent of research funds in 1975 to 17 percent in 1984. These funds may have come from various initial sources including endowment income, private gifts, foundation funds, and any other unrestricted funds.

Private universities received a greater portion of their research revenues from the federal government than did the public universities (fig. 5). For 1984, federal grants and contracts made up 81 percent of private universities' research funds, but only 57 percent of public universities'. On the other hand, the public universities draw on government appropriations (other than federal) and other sources of institutional funds for a greater portion of their research.

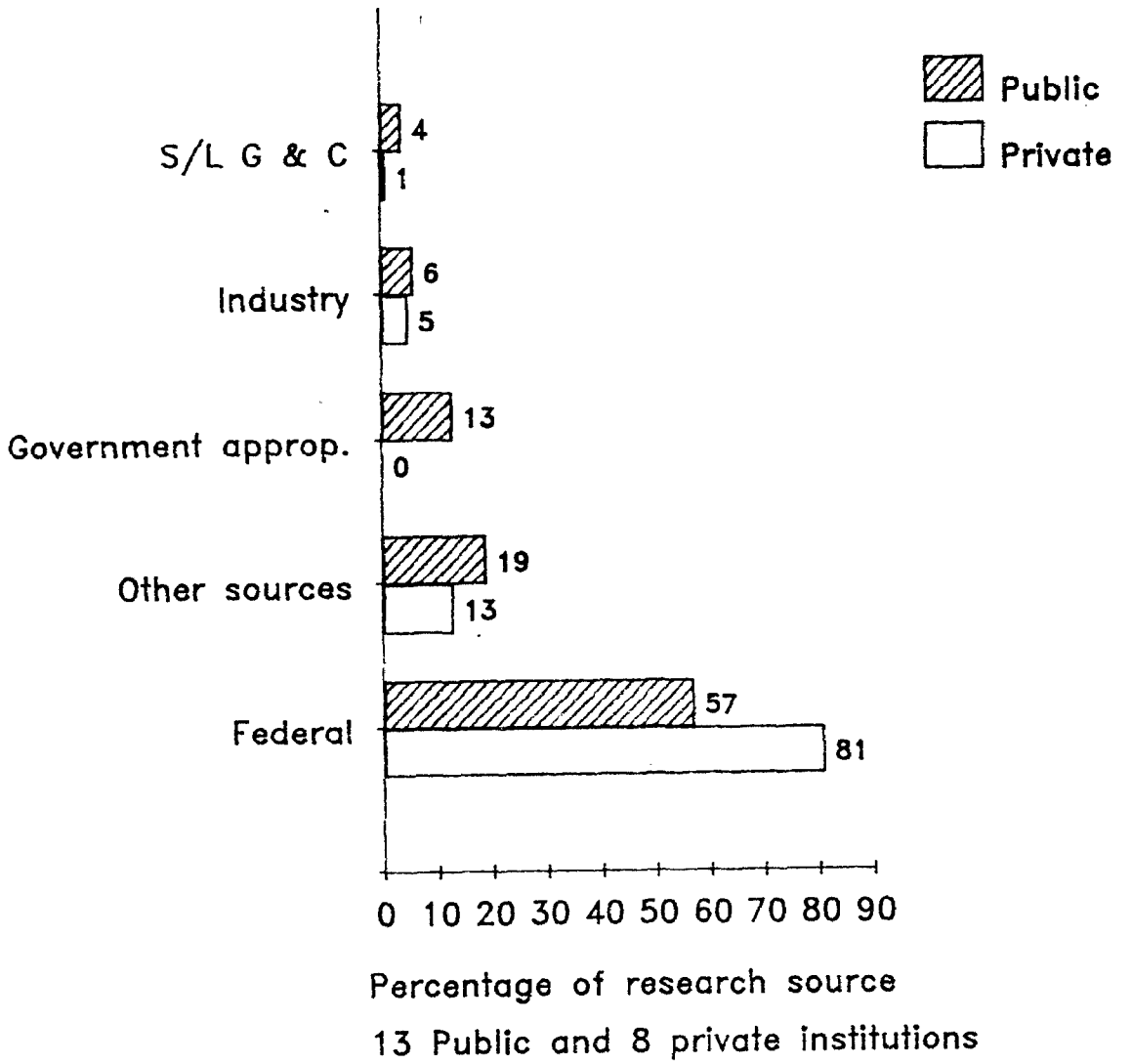
INDIRECT COSTS FOR RESEARCH AND DEVELOPMENT

The amount of and increases in indirect costs have been the subject of controversy over the past decade as critics claim that these costs are rising too rapidly and divert money from pressing research needs. University officials, in general, disagree with these critics.

Indirect costs are those that support research but cannot be specifically attributed to individual projects. These costs include categories such as administration, facility

Figure 5

Research Revenues for Public and Private Universities[a]
(1984)



[a]Percentages do not add to 100 because of rounding.

operations and maintenance, and building and equipment depreciation. Indirect cost rates for federally funded research at each institution are developed and negotiated in accordance with OMB Circular A-21. Last June, OMB published changes to A-21, placing a cap on future payments for administration overhead.

Increases in Indirect Costs. For the institutions in our sample, indirect costs as a percentage of each federal research dollar rose from 22 percent in 1975 to 26 percent in 1984. Public institutions' overall level of indirect costs remained at a relatively constant 20 percent. Private institutions' indirect costs rose from 24 percent of the federal research dollar in 1975 to 31 percent in 1984.

The federal government pays a higher proportion of research support as indirect costs than do other sponsors of university research. In comparison with the federal 26 cents of indirect costs on the research dollar in 1984, indirect costs accounted for 14 cents of every industry research dollar and 7 cents of every dollar of state government research and development support. However, experts on university finance explained to us that indirect cost reimbursements for state or industry research projects are determined differently than those negotiated with the federal government. State governments and private firms may arbitrarily set indirect cost rates or negotiate rates on a project-by-project basis.

Categories of Indirect Costs. The administrative categories accounted for the largest amount of indirect costs--from 56 percent to 54 percent of federal reimbursements for the 20 institutions reporting these data (fig. 6). This proportion has not changed much over the past 10 years. Operations and maintenance accounted for the next largest share of indirect costs, increasing from 24 percent in 1975 to 28 percent in 1984.

For the public institutions, the portion of indirect costs due to administration increased slightly, while it decreased a small amount for private universities. Public and private institutions' reimbursements for operations and maintenance showed the same upward trend, with private institutions showing a higher percentage for this category of indirect costs.

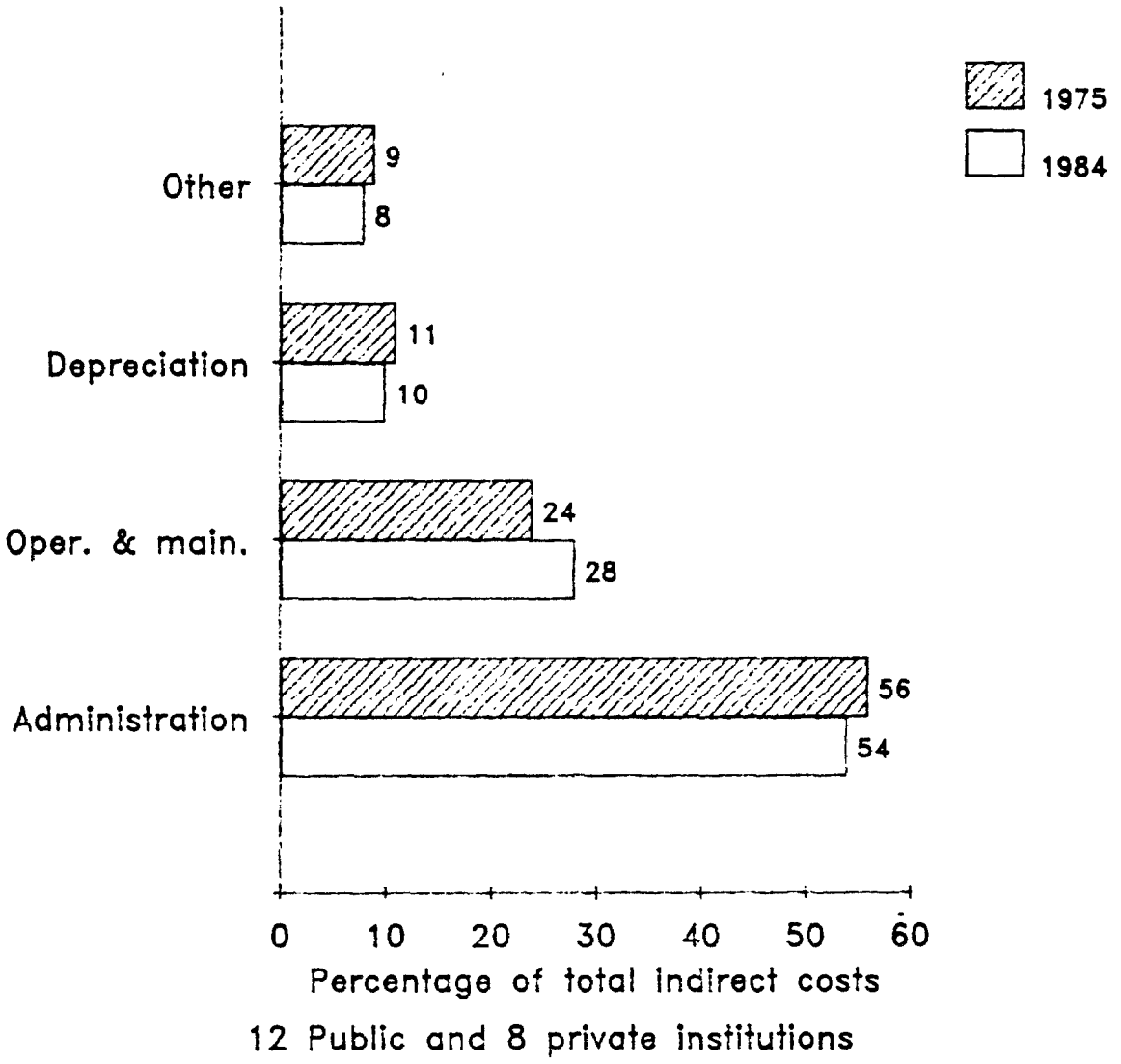
RESEARCH CAPABILITY UNDER VARIOUS LEVELS OF FEDERAL RESEARCH FUNDING

In response to the committee's request for information on how university research capability might be affected by changes in federal research funding, we interviewed senior research officials at 26 of the universities in our sample. To establish a base, we first asked the universities about the present contraints to their research efforts.

University officials told us that the inadequacy of both research equipment and research facilities was the leading constraint to their present research efforts. Inadequate research equipment was reported as a hindrance to present research by 23 universities and inadequate facilities by 20 of

Figure 6

Categories of Federally Reimbursed Indirect Costs
(1975, 1984)



12 Public and 8 private institutions

the universities. Nine universities--all public--cited difficulties in recruiting and supporting graduate students in science and engineering.

If federal research funding were to remain roughly at present levels, we were told, present constraints would probably worsen if there were no additional remedies. According to the university officials, a decline in federal research funding would generally exacerbate present constraining factors, with three kinds of likely effects:

--Personnel reallocation/retrenchment: Most mentioned was the potential necessity of cutting back on the number of personnel employed, particularly technicians, graduate students, and young faculty, since universities have commitments to tenured faculty. According to some university officials, these choices would be very difficult, since they placed great importance on the linkage between graduate education and research and the consequent need to support graduate students through fellowships and assistantships.

--Infrastructure: Present equipment and facility constraints would be exacerbated.

--Research: Seed money or "venture capital" for new endeavors would be cut.

Additionally, officials at two private institutions noted that their indirect cost rates would probably increase if their federal research funding dropped, since the indirect costs are

relatively fixed and would have to be spread over a smaller amount of federal research awards.

University officials described how, in response to potential declines in federal research funding, their institutions are building on their existing or future program strengths to attract new research money. Some universities have identified specific fields, predominantly those that are interdisciplinary and involve applied research, that they would like to see emphasized on their campuses. Some universities have set up new centers or provided matching funds as inducements for faculty to target areas such as molecular biology, electronics, telecommunications, and materials.

A small number of university officials were confident that a national decline in federal research funding would not adversely affect their institutions. They believed that they were sufficiently competitive to win an adequate amount of research funding to support their university's current or future research effort.

SUMMARY

We found that the research universities in our sample were receiving a smaller portion of their research revenues, overall operating revenues, and physical plant funds from the federal government than they did 10 years ago. This occurred because federal research support increased at a slower rate than most other sources of research revenues. Tuition and fees, auxiliary and other sources, and private sources provided an increasing

share of these revenues. Industry funding of research more than doubled in constant dollars, showing the greatest percent increase of any source of research funds. Even with this big increase, these funds accounted for only about 6 percent of research revenues for both public and private universities.

For public universities, federal funds still account for over half of the research revenues. Other major sources of research revenues are internal university funds and state appropriations. State government funds consistently provided about half of educational and general revenues and specific physical plant funding over the past 10 years.

For private universities, the federal government provided about 80 percent of the research revenue; most of the rest came from other internal funds. Tuition and fees replaced federal funding as the number one source of educational and general operating revenues. Other internal funds consistently provided about 70 percent of physical plant funds over this period.

On the basis of these data and interviews, we found that universities are capturing a greater portion of their research revenues from nongovernment sources. Changes in the portion of research supported by different sponsors could affect both the nature of university research and the support and costs of other university functions.

This concludes our prepared statement. We will be glad to answer any questions.