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INDIRECT COST RATES AT RESEARCH UNIVERSITIES

WHAT ACCOUNTS FOR THE DIFFERENCES

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This paper identifies differences in indirect cost rates among research universities and provides some explanations as to why those rates vary.

An explanation is needed because variances in rates from university to university create perceptions of mismanagement, inefficiency, and abuse. Critics of the current system include our own university presidents, members of Congress, university faculty members, and federal officials. Essentially, there is a divergence of perceptions, interests and value judgments among these parties. This divergence negatively affects the image of research universities and weakens the ability of university representatives to set the agenda for science. Consequently, the debate among policy-makers, both in and out of Congress, shifts away from the pursuit of effective research and education to the question of controlling indirect costs. Given these concerns the leadership of both the Association of American Universities and National Association of State Universities and Land-Grant Colleges asked the Council on Governmental Relations to identify reasons for differences in indirect cost rates.

It has been suggested that indirect cost rates vary primarily because of a variety of accounting practices used by universities. This study indicates that those accounting techniques that significantly impact rates are caused by established university policies and practices not by financial manipulation. Such variations reflect true institutional diversity. These variants include such items as state versus private governance, policies regarding debt financing, decisions to recover full or less than full costs from federally sponsored research and the content of the modified total direct cost research base (MTDC). While these differences can be construed as accounting practices, they occur because institutions chose to be unique for historical, political, or financial reasons.

Fifteen universities were asked to participate in a study which would identify the reasons for differences in indirect cost rates among universities. Fourteen universities agreed and are listed in Exhibit 1. The institutions were selected to provide a representative sample to include public and private, geographic diversity and a variety of indirect costs and volumes of expenditures for federally sponsored programs. The study is based on indirect cost information available as of the Spring of 1987 at each of the fourteen universities. In some instances, different fiscal years are utilized, but this does not skew the data in a material way.

Based on an analysis of the data collected, it is evident that the principal differences in indirect cost rates result from the following:

1. Space Related Costs - the location, age, operation and maintenance of facilities; methods of financing facilities; use allowance versus depreciation recovery; mix of research; intensity of space use; and unit costs of utilities.

2. Cost Recovery Policies - the magnitude of cost sharing (institutional contributions to research costs), particularly voluntary indirect cost sharing.

3. Other Factors - institutional policies and practices concerning direct versus indirect charging of certain costs and other components of the rate, including administrative costs.

What Accounts for the Differences

The proposed indirect cost rates of the fourteen participating institutions ranged from a low of 32.41 percent to a high of 71.40 percent with a mean rate of 53.46 percent of modified total direct costs. The standard deviation (a measure of the dispersion from the mean or average) of the proposed rates is 12.06 percent. An analysis by component shows that space-related costs had a standard deviation of 8.25 percent while administrative costs had a standard deviation of only 4.28 percent. The space related rate of 6.43% at the University of California, San Francisco contributes significantly to the 8.25% standard deviation in this component. However, even if that institution's data are excluded, the standard deviation in total space related costs is 6.51%.

The actual negotiated rates of the fourteen institutions ranged from a low of 32.4 percent to a high of 70.0 percent of modified total direct costs. The standard deviation of total negotiated rates is 11.36 percent.

The most significant differences in rates occur because of space related differences in size and intensity of use of facilities, financing of facilities, depreciation of facilities and location. The final negotiated rates, excluding carry forward and points not claimed in proposed rates, represent reductions in actual rates and can be, at least in part, attributable to institutional cost recovery policies.

A component by component analysis of the proposed rates by institution is shown in Exhibit 2. Space related costs are the major variant as shown in Table 1 below.

TABLE 1

Rate Variations by Major Components

Component	Range (Point spread from low to high)	Mean	Standard Deviation
Space Related	27.37	25.12	8.25
Administration	14.14	28.12	4.28
Library	10.65	3.79	2.92

Space Related Costs

Facility Size and Intensity of Use

The size and intensity of use of a university's research facilities and buildings are the primary cause accounting for the variability of indirect cost. Two universities with the same amount of direct research costs, but one with a larger research facility will have significantly different levels of costs in the facilities related expense pools. For example, the University of Washington has a direct cost research grant and contract base of $78 million, and the University of California at San Francisco has a $77 million base. Despite this comparability in base expenditures, the University of Washington's research facilities total 1,178,000 net square feet and UCSF's research facilities total 530,673 net square feet. The University of Washington's space related components of indirect cost total 15.77 points, while at UCSF these same components total 6.43 points. A difference of more than a factor of two.

Expenditure Level for Facilities

Another important factor in facility related costs is an institution's ability to secure funds to construct, upgrade and maintain research facilities. There are large variances among institutions in securing funds for facilities due to debt capacity, state appropriations, state regulations and cost of construction in local areas. Universities that have been able to spend money to renovate and/or construct new research facilities experience a higher level of costs than other institutions that are unable to do so. For example, both Stanford and MIT have committed significant resources in the last few years to their research facilities. These costs are reflected in their recovery rates for buildings, which are 7.70 and 6.47 percent of their direct cost base respectively. In contrast, the Universities of Virginia, Cornell and Missouri have for varying reasons not made as large an investment in facilities and have rates of 1.49, 2.03 and 1.66 percent respectively. While some of the difference can be attributed to the use of depreciation rather than a building use allowance method of charging for space, it is apparent that investment in facilities is the prime factor.

Depreciation and Use Allowance

The method by which a university recovers equipment and facility costs contributes to the differences. For example, The Johns Hopkins University depreciates its buildings over forty years, while Stanford has three classes of buildings, which are depreciated over forty, twenty and ten years. Other institutions utilize the use allowance method to recover facilities costs. The depreciation/use allowance components for the sample of fourteen universities range from a low of 3.11 percent at UCSF to highs of 13.7 at Stanford and 11.93 at MIT. The mean is 6.78 with a standard deviation of 2.92. UCSF has old space and utilizes the use allowance method; Stanford and MIT have new and renovated space and use depreciation to calculate the costs. Many of the schools, especially state schools, have aging physical facilities and a relatively low recovery from a use allowance. As pointed out in recent OSTP, NSF and GAO reports, many see the need for new or significantly upgraded facilities and equipment in order to perform "leading

edge" research. We will, therefore, likely see more institutions with components closer to Stanford and MIT than UCSF as institutions invest in physical facilities and recover cost over a shorter period through depreciation in order to pay off debt or reinvest in new or renovated facilities.

Location

Location has a significant effect on the costs of facility operations. This can be demonstrated by comparing the cost of utilities and number of points in proposed rates for three institutions; Stanford University, University of Washington and University of Pennsylvania. Table 2 compares the total utility cost at the three institutions and displays the cost per kwh of electricity. The University of Washington pays $.0264 per kwh while Stanford University pays $.1010 per kwh. Even with differences in volume of research and square feet of facilities allowed for, the cost of electricity is a major factor in the point spread for utilities between Stanford University and the University of Washington.

Table 2 also highlights the issue of how differences in volumes of research expenditures affect rates. Stanford University and the University of Pennsylvania have similar amounts of space allocated to research. They also have somewhat comparable total costs for utilities although the rates for utilities are different. It is assumed that the probable cause for greater consumption at the University of Pennsylvania is climatic differences. Although the square footage and utility dollars allocated to research at Stanford University and the University of Pennsylvania are similar, the University of Pennsylvania's rate is 5 points higher due to a lower research volume.

TABLE 2

Utility Costs and Points in Indirect Cost Rates at Three Institutions

	Stanford University	University of Washington	University of Pennsylvania
Volume of Research Expenditures (MTDC[1])	$115.73M	$87.88M	$63.72M
Square Feet of Space Allocated to Research	1,007,490	1,178,000	1,012,950
Cost of Electricity per KWH	$.1010	$.0264	$.0630
Total Cost - All Utilities Per Year	$10.30M	$3.36M	$9.19M
Points in Proposed Indirect Cost Rate	8.9	3.82	14.4

([1] Modified Total Direct Cost Base)

Research Mix

Finally, the "mix" of research among institutions contributes to the variances in facilities rates. While this has not been quantified in this study, it is clear that biomedical laboratories are more costly per square foot than space for mathematicians.

Cost Recovery Policies

Cost sharing by research universities is both direct, for example, faculty effort devoted to sponsored research but paid by the university and indirect, for example, the acceptance of a lower than calculated indirect cost rate. All research universities share in the cost of federally sponsored research. The degree to which an institution shares in the cost is an important factor when examining differences in indirect cost rates. The reasons for different levels of cost sharing vary. Pressure from researchers to price research for competitive reasons has frequently been reported to be a major factor. Institutional policy concerning the distribution of recovered indirect costs is another. There is, in those institutions that distribute a portion of indirect cost recoveries to the faculty, department of college, an incentive to the researcher to encourage the institution to aggressively recover indirect costs.

In its most basic form, universities cost share by simply charging less than their calculated rates. Princeton University's calculated rate at 73 percent is, in total, about the same as Stanford University's calculated rate. But since Princeton University voluntarily accepts only 64 percent, it appears to the government and to the public to have a lower rate.

State universities on average propose and collect less indirect costs than private universities. One reason is that greater recovery of appropriate costs requires special studies. The cost to the institution of preparing such documentation, for example detailed special utility studies, may not bring a return in recovery to the institution that warrants the upfront expense. Although states fund many of the support costs, not all of them allow some of the recovered funds to flow back to the universities to be used to further support research programs. In those cases where universities recover indirect costs as a budget offset, they have less incentive for special initiatives.

Other Factors

Administrative Costs

Administrative costs include general administration, departmental administration, academic administration, and sponsored project administration and student service administration. Since the allocation of these costs is more difficult to quantify, they are the most criticized and questioned indirect costs. They are not, however, the major contributing factor to the differences in rates between institutions. The data collected here is based on information that does not reflect the 3.6 percent fixed allowance for faculty administrative effort. This limitation on recovery will further reduce rate differences in the administrative components. For a

more definitive look at the administrative cost components of indirect cost rates, the reader is referred to the Council on Governmental Relations paper dated February 8, 1985 entitled "Variations in Administrative Cost Rates of Research - A Look at Eight Universities."

Direct versus Indirect Costing

Certain institutions may elect to recover a given cost by charging grants and contracts directly for the item, and other institutions may include that cost as part of the indirect cost pool. Such practices have an effect on rates, since moving an item from indirect to direct classifications changes both sides of the fraction. It is not surprising, therefore, that the University of California at San Francisco, which by policy direct charges as many items as possible to the specific grants (including many space related costs which are almost uniformly treated as indirect costs elsewhere), has the lowest calculated indirect cost rate in the survey (32.41 percent). By contrast, Brown University and Princeton University, which tend to recover many items in the indirect cost rate (including secretaries who in general are direct charged elsewhere), have calculated rates towards the high end of the group studied (65 percent and 73 percent, respectively). For example, one institution prohibits any payment of secretarial salaries as a direct cost to sponsored agreements, and includes secretarial salaries as a component of departmental administration. Other institutions permit the direct charging of some of these salaries and hence produce a smaller cost pool, and with a corresponding larger base resulting in a lower indirect cost rate. Similar examples can be found in most components of the indirect cost rate. Costs of adapting laboratories to the needs of specialized equipment used in a particular project are charged directly to the grant or contract in at least one institution, while similar physical plant costs are recovered as part of the indirect cost at another institution. OMB Circular A-21 fully acknowledges that different policies are allowable provided each institution applies its policies consistently. In fact, the differing treatments frequently result from either external constraints on the institution, in the case of state schools, or else differences in the budgeting strategies of various institutions. While changes in these budgeting procedures could be accomplished, the associated costs may well make this uneconomical, both for the institution and the federal government.

Modified Total Direct Cost Base (MTDC)

Another factor is the content of the modified total direct cost base. The MTDC consists of salaries and wages, fringe benefits, material and supplies, services, travel, subgrants and subcontracts up to $25,000 each. Circular A-21 allows for variations in the bases where it can be demonstrated that they produce more equitable results. While the base may affect the overhead rate used to recover costs, it does not reflect differences in the cost of research support systems or the amount of costs actually recovered.

Library

The last smaller, but important, rate component is the Library. In the sample, it ranged from 0.8 percent at the University of California, San

Francisco to 11.45 percent at Princeton University. The difference is a function of the resources expended on the library and the use of a special study to determine the allocation. Institutions with large undergraduate populations tend to have smaller library components due to the emphasis on undergraduate education. Universities with large graduate faculty research libraries tend to have a larger library component.

Summary

In summary, differences in indirect cost rates at colleges and universities are attributable to differences in facility-related costs, of institutional cost recovery policies and other factors including administrative costs.

The facility-related differences can be summed up by pointing out differences in: (1) facility size and intensity of use; (2) debt level; (3) depreciation/use allowance policies; (4) size of research base relative to investment in buildings and facilities; (5) utility rates; (6) geographic location; and (7) mix of research.

The differences in cost sharing are principally differences that result from a university's cost recovery policies and practices. These are driven by several factors including pressure from faculty to price research, distribution of recovered funds and whether an institution is public or private.

Other factors such as administrative and library costs and institutional practices concerning direct versus indirect treatment of costs have an effect on variances in rates but they are not as significant as those cited above. The administrative costs issue covered in a previous paper has been largely resolved by the 3.6 percent faculty allowance prescribed by the federal government.

November 5, 1987

EXHIBIT 1

Fourteen Participating Universities

Brown University
University of California, San Francisco
Cornell University
University of Illinois
Johns Hopkins University
Massachusetts Institute of Technology
University of Michigan
University of Missouri
University of Pennsylvania
Princeton University
Stanford University
University of Virginia
University of Washington
University of Wisconsin

Exhibit 2

COGR Study on Indirect Cost Rates

Proposed Rates by Component and Total Negotiated Rates

Proposed Component Points

Name	Agency	Deprec	O&M	Tot.Space	Admin	Lib	Total Proposed	Total Negotd	Difference Neg/Prop	Ratio Neg/Prop
UCSF	HHS	3.11	3.32	6.43	25.18	0.80	32.41	32.40	-0.01	99.97%
Missouri-Columbia	HHS	3.67	13.12	16.79	22.06	3.72	42.57	37.50	-5.07	88.09%
Univ. of Washington	HHS	6.02	9.75	15.77	26.78	2.82	45.37	41.22	-4.15	90.85%
Wisconsin-Madison	HHS	5.70	14.30	20.00	23.70	1.20	44.90	43.00	-1.90	95.77%
Michigan	HHS	5.20	19.30	24.50	36.20	2.80	63.50	50.00	-13.50	78.74%
Univ. of Virginia	HHS	7.10	12.83	19.93	28.42	1.89	50.24	50.00	-0.24	99.52%
Illinois-Urbana	ONR	6.96	22.36	29.32	29.56	2.74	61.62	55.20	-6.42	89.58%
Hopkins	HHS	6.28	25.57	31.85	27.07	1.80	60.72	59.00	-1.72	97.17%
MIT	ONR	11.93	21.13	33.06	23.77	2.66	59.49	59.49	-0.00	100.00%
Cornell	ONR	4.59	24.04	28.63	24.51	7.03	60.17	60.60	0.43	100.71%
Penn	HHS	7.80	26.00	33.80	31.70	2.20	67.70	61.00	-6.70	90.10%
Princeton	DOE	5.11	21.69	26.80	35.19	11.45	73.44	64.00	-9.44	87.15%
Brown	ONR	7.61	23.72	31.33	28.60	5.07	65.00	65.00	0.00	100.00%
Stanford	ONR	13.70	19.80	33.50	31.00	6.90	71.40	70.00	-1.40	98.04%
Arithmetic Mean		6.77	18.35	25.12	28.12	3.79	57.04	53.46	-3.58	
Standard Deviation		2.93	6.70	8.25	4.28	2.92	12.06	11.36	4.20	
Highest Value		13.70	26.00	33.80	36.20	11.45	73.44	70.00	0.43	
Lowest Value		3.11	3.32	6.43	22.06	0.80	32.41	32.40	-13.50	
Range (Hi - Low)		10.59	22.68	27.37	14.14	10.65	41.03	37.60	13.93	

Remarks:

1 Deprec = Bldg Use/Deprec + Equip Use/Deprec
2 O&M = Oper & Maint + Interest
3 Tot Space = Deprec + O&M
4 Admin = Gen Admin + Dept Admin + SPA + SS + Acad Admin
5 Total Prop = Tot Space + Admin + Lib + Carryforward
6 Schools are sorted by the final negotiated rates.
7 In some cases, rates found in the Total Negotiated Column represent lower figures than a school's audited rate. This lower figure represents an institutional decision to accept less than actual recovery.
8 Standard deviation is introduced as a measure of the spread of values. As described in the text, reasons exist for the spread, and thus the distribution is certainly not a normal distribution.
9 Carryforward elements are excluded from this Exhibit as the focus here is to display structural differences among universities. Carryforward points are a product of timing and do not relate to specific cost pools.