RMR

Research Management Review

The Journal of the National Council of University Research Administrators

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EDITOR'S PREFACE

This issue marks the beginning of a new era for the *Research Management Review* (*RMR*). The Board of Directors of the National Council of University Research Administrators decided this year to make *RMR* completely electronic. Two versions of each issue will be available. The first is an html version. This version is "built" month by month, on line -- with a new feature article appearing each month. The second version is the complete published issue, which is available only on the Web as a pdf document and replaces the html version. This complete issue appears only after all the articles for the issue have already appeared on the Web. We hope that this new approach not only continues the tradition of excellence that *RMR* has built over the years, but that it offers new opportunities for communicating in the form of a scholarly journal what is happening in research administration.

This issue also is special in that it is dedicated to a single topic: cost sharing. No other topic stirred so much controversy and discussion over the past year in the field of research administration. Clear battle lines seem to be drawn between the different camps and some unique alliances have developed.

In the first article, Richard P. Seligman of the California Institute of Technology, former President of NCURA, introduces the topic of cost sharing and sets the framework for the discussions that continue. Then Arthur Bienenstock, Associate Director of the White House Office of Science Technology and Policy, gives the big picture on why this topic is so important to the nation's research program.

A complete discussion of cost sharing cannot take place without knowing where we have come from. Robert B. Hardy of the National Science Foundation (NSF) provides a remarkable history of cost sharing and explains the potential paths that cost sharing may take in the future. He also briefly explains the new NSF policy on cost sharing. The next author, Charles R. Paoletti of the Office of Naval Research, also discusses some of the history of cost sharing, but explores the issue more from a policy perspective.

Next, Irwin Feller of Penn State, who wrote a study for the NSF on cost sharing that kicked off much of the national debate, provides an insightful discussion that summarizes some of the issues that his study uncovered and what big issues remain to be addressed.

Finally, we hear from two parties that propose different ways to deal with one of the most difficult aspects of cost sharing (voluntary faculty effort). First, Jack Kamerer and Sarah Wasserman of the University of Illinois present a "modest proposal" that deals with adding a "factor" for voluntary cost sharing into the facilities and administrative cost base used in calculating indirect costs. Then Mike Thibault from the Defense Contract Audit Agency presents an auditor's perspective of this most difficult cost sharing aspect.

The articles presented are sure to enlighten many readers and to generate additional discussions.

Robert Killoren
Editor
July 2000

An Introduction to Cost Sharing: Why Good Deeds Do Not Go Unpunished

Richard P. Seligman
California Institute of Technology

Abstract

The concept of cost sharing seems inherently reasonable and simple. It also seems to be causing considerable aggravation in the higher education research community these days.

This article examines some of the factors that are contributing to the notion that cost sharing has become a "problem." Among these factors is a combination of abuses by funding agencies and grantee institutions, both using cost sharing as a way of leveraging their funds and "buying in" to research programs. In addition, there is a cluster of costing, accounting, and auditing issues that have combined to create serious difficulties for grantee institutions vis-à-vis cost sharing. Among these are effort reporting, the Cost Accounting Standards, and indirect cost rate calculations. Each of these factors and its relationship to cost sharing is reviewed and analyzed. The proposals for cost sharing reform presented in the recent report of the National Science and Technology Council are discussed. The article concludes with an assessment of where things currently stand and what will be required to bring about some improvements.

What's the big deal? The concept seems so simple. The sponsor expects the grantee to share in the costs of a worthy project. The grantee agrees to do so. The sponsor expects the grantee to keep track of its contributions and report on them occasionally. Everything seems fine. And then someone says something about cost sharing lowering the indirect cost rates. Someone else says something about making sure that the cost sharing is reflected in the effort reporting. And yet another person wonders if the cost sharing is being handled in accordance with the grantee's Cost Accounting Standards Disclosure Statement. How did we get from a simple concept, sponsor and grantee sharing in the cost of a worthy project, to complex accounting and costing problems? What has gone wrong?

This article examines the concept of cost sharing and identifies some of the problems that have been encountered in recent years. In part, it is an attempt to answer the question, why is an entire issue of ***RMR*** being devoted to this subject?

Assistance vs. Procurement

The early days of the partnership between universities and the federal government featured two principal mechanisms for supporting research: grants and contracts. Grants represented a form of financial assistance in which the federal agency was providing funds to support a worthy activity, proposed by a principal investigator at a grantee institution, that was found to be scientifically or technically meritorious. In contrast, contracts were used by government agencies for the procurement of goods and services for the benefit of the agency. It seemed reasonable and philosophically consistent with the concept of financial assistance that federal agencies issuing grants would expect grantees to share in the costs of the programs that were being supported. It was also recognized that cost sharing is not consistent with the concept of procurement of goods and services. In such situations, there is no particularly

good reason for the government to expect contractors to share in the costs of providing goods or services.

Cost sharing was contemplated at the time that the National Science Foundation was created. The so-called "statutory" cost sharing requirement of one percent of total NSF support reflects this early notion of the inappropriateness of the NSF to pay the total costs of each research project and the obligation of the grantee, therefore, to participate in the costs of research projects. In the early 1970s, the Department of Health, Education and Welfare (DHEW), now known as the Department of Health and Human Services (DHHS), had a practice of entering into formal cost sharing agreements with grantee institutions that set forth specific levels of cost sharing for all DHEW research grants awarded at that institution.

Beyond these practices of NSF and DHEW, the number of instances in which there were formal cost sharing requirements on federally funded research programs at universities was indeed small and there seemed to be few problems or difficulties caused by the presence of these requirements. Most grantee institutions found that the NSF statutory requirements, as well as those of the DHEW cost sharing agreements, could be met and documented with relative ease.

Leveraging

In the 1980s, with increasing demand for research funding and a reduction in the growth curve of the budgets of federal research agencies, officials in some agencies began to informally impose cost sharing requirements on their grant programs as a way of leveraging their funding. If they could get several grantees to each participate in the costs of a program, they could award more grants and fund more projects. Again, there is nothing sinister or inherently inappropriate about this concept. However, as with many good concepts, it can be carried too far. And it was. Cost sharing became the wedge that widened the gap between the "have" and the "have not" colleges and universities. Institutions that were able to come up with cost sharing dollars could play in the game and institutions that were not able to come up with the funds were out of the running.

> Cost sharing became the wedge that widened the gap between the "have" and the "have not" colleges and universities.

A variation on this practice occurred when some institutions desiring to improve their standing in the ranks of research recipients used cost sharing as a way of "buying" their way into a particular grant program where they might otherwise not be likely to get funded. The use of cost sharing to obtain grants that might not be awarded strictly on merit was indeed a far step away from the early notion of having grantees participate in the cost of worthy projects.

Effort Reporting

The intersection of cost sharing and cost accounting represents another major cluster of problems in which the original notions of cost sharing and grantee participation have become seriously distorted. The introduction in OMB Circular A-21 of the formal requirements for faculty time and effort reporting in the 1970s spelled trouble for colleges and universities. The concept of time and effort reporting is relatively simple and possibly even harmless. A professor, either before the fact or after the fact, takes a look at his or her time and effort and makes some gross estimates of how that effort should be allocated to the major job responsibilities: teaching, research, and university service. Everyone understands and acknowledges that these estimates cannot be precise. Nonetheless, once made, the effort reports can be used by auditors and others to question the ways in which faculty members track the manner in which they are spending their time and charging it.

One of the purposes of time and effort reporting was to assure that the time charged directly to a federal grant or contract would indeed be spent on that project and that there would be some way of documenting that this had taken place. As it turns out, that is really not the problem. In the vast majority of instances, the effort of a professor that is charged to a grant is indeed provided by that professor. In fact, in most cases, the professor spends far more time working on the grant than is paid for by the granting agency.

Once again, there is nothing inherently wrong with that, unless one is trying to make a precise accounting of how researchers spend their time and charge for their effort. In the higher education setting, however, such precision is neither possible nor particularly beneficial. This is not because faculty members are so muddle-headed or absent-minded that they cannot keep track of how they are spending their time. Rather, it is because of the fundamentally flawed assumption that the functions performed by faculty are

separate, distinct, and not closely interrelated. Where does "teaching" end and "research" begin? These activities are so completely intertwined that it becomes extremely difficult, if not impossible, to separate them. This is particularly true when one thinks of graduate education and postdoctoral studies. The role and function of the professor cannot easily be pigeonholed into apparently mutually exclusive categories such as instruction, research, and institutional service.

Cost Accounting Standards

The incorporation of selected Cost Accounting Standards (CAS) into OMB Circular A-21, making them applicable to colleges and universities, has produced further distress. CAS 501, Consistency in Estimating, Accumulating and Reporting Costs, requires that costs included in proposals be estimated consistently, accounted for consistently, and reported consistently. All of this consistency may make good sense from a cost accounting standpoint, but it does not necessarily make for sound research and education policy. When cost sharing is offered at the proposal stage, the consistency requirement of CAS 501 requires that, in a resulting award, these costs be recorded in the accounting system, reflected in financial reports submitted to the sponsor, and taken into account in the calculation of the indirect cost rate.

CAS 502, Consistency in Allocating Costs Incurred for the Same Purpose, requires that like costs be treated consistently as direct or indirect costs. Again, this seems to be a concept with which one could hardly argue. However, in a complex institution such as a research university, consistency in cost allocation practices may not necessarily make good sense. For instance, faculty effort charged to institutional funding sources is generally considered to represent costs that support the instruction mission of the institution (professors are paid to teach). But, if that same faculty effort charged to institutional funding sources were construed as a contribution to the organized research function of the institution (professors are also paid to do research), it would have to be considered a cost that supports research and therefore should be included in the organized research base, rather than in the instructional base. Here is the essence of "no good deed going unpunished." Traditionally, the voluntary contributions of faculty effort in support of research have been thought of as "departmental research" or "instruction" rather than organized research. What difference does it make? To understand this issue and its implications for the grantee institution, one must examine the facilities and administrative (F & A) — or indirect — cost requirements of OMB Circular A-21.

> Perhaps the most difficult relationship to understand in the context of examining the subject of cost sharing is the one between cost sharing and the institution's indirect cost rate.

Indirect Costs

Perhaps the most difficult relationship to understand in the context of examining the subject of cost sharing is the one between cost sharing and the institution's indirect cost rate. Because of the way that OMB Circular A-21 requires indirect costs to be calculated, some members of the audit and indirect cost negotiation community assert that all cost sharing, whether voluntary or mandatory, should be included in the calculation of the direct costs of organized research. This number, the dollar value of the direct costs of organized research, is the denominator in the fraction that determines the indirect cost rate. The numerator in this fraction is the dollar amount of indirect costs associated with organized research. The indirect cost rate results from dividing the numerator by the denominator.

As the denominator (the dollar amount of direct costs of organized research) increases relative to the size of the numerator (the dollar amount of indirect costs of organized research), the indirect cost rate decreases. Thus, an institution which has $100 million in indirect costs associated with organized research and $200 million in direct costs for organized research would have an indirect cost rate of 50% ($100 million divided by $200 million equals 50%). At that same institution, if the direct costs of organized research increase by $50 million to reflect an accurate accounting for all the cost sharing that takes place, the indirect cost rate would drop to 40% ($100 million divided by $250 million equals 40%). Therefore, not only is there no incentive for offering voluntary cost sharing, there is a clear disincentive for doing so.

More cost sharing leads

to a lower indirect cost rate. From the point of view of a college or university, this does not seem at all fair or reasonable. The point of view of the government agencies that negotiate indirect cost rates is different. Congress, the Administration (through OMB), and our own faculty colleagues apply consistent pressure to keep indirect cost rates lower, or to at least slow down the rate at which they increase. ONR and DHHS indirect cost auditors and negotiators are engaged in a constant vigil against the attempts of some colleges and universities to push their indirect cost rates higher. Government representatives see the unwillingness of educational institutions to accurately account for cost sharing as an attempt to artificially inflate indirect cost rates by keeping the voluntary cost sharing amounts out of the calculation of the direct costs of organized research.

Given these costing considerations - effort reporting, consistency in costing, and indirect cost calculations - colleges and universities find themselves in the position that the more they contribute to a particular project or program, the less they are rewarded, the more they feel that they are being punished.

WHAT CAN BE DONE?

A recent and extremely thoughtful analysis of the federal-university research partnership sheds some light on what can be done to ameliorate this situation. Entitled, *Renewing the Federal Government-University Research Partnership for the 21st Century*, the report of the National Science and Technology Council (NSTC) provides considerable food for thought on the subject of cost sharing and its impact on the research partnership. One point in the report is particularly worthy of note.

The NSTC makes a very compelling argument that current rules and regulations for calculating indirect costs and tracking cost sharing create disincentives against voluntary contributions of faculty time. A fairly simple and reasonable solution to this dilemma is offered in the suggestion that the only cost sharing that should be tracked and accounted for in effort reports and in the calculation of indirect cost rates is the cost sharing that is specifically included in the proposal budget and required as a condition of the award. Voluntary cost sharing by the faculty, above and beyond that which is required as a condition of the award, should not be included in indirect cost calculations or otherwise used to penalize faculty members or their institutions for contributing to the research effort supported by a federal agency.

It is the hope of many in the research community that the recommendations and analyses of the NSTC will find their way into the policies and practices of the federal government.

CONCLUSIONS

This brief review of cost sharing and some of the issues surrounding it suggests that cost sharing is likely to remain an important topic for faculty, administrators, and agency officials until some of the current obstacles have been removed. Cost sharing has a significant impact on proposal practices, financial systems, effort reporting, and indirect cost calculations. A successful resolution of the major cost sharing issues requires a shared commitment on the part of all participants in the research enterprise to take a careful look at this issue and make some decisions that will facilitate and encourage the conduct of research in our nation's colleges and universities. To do less is to leave the research component of American higher education vulnerable to further abuse and aggravation.

Some Thoughts on Cost Sharing

Arthur Bienenstock
Office of Science and Technology Policy

Abstract

This paper discusses various policy considerations related to the sharing by universities of the costs of federally funded research. The discussion is framed in the context of government expectations that research universities will carry out the vital functions of training the next generation of scientists and engineers, performing a large fraction of federally funded basic research, and educating a large portion of our youth.

Two aspects of the generally held belief that we have entered an "Information Age" ring true. The first is that our nation's economy and standard of living, the health of its citizens, the quality of its environment and its security will depend increasingly – and critically – on the effectiveness of its fundamental and applied research.

At the same time, the increasing diversity and globalization of our society, coupled with the greater sophistication of its "tools", will require the nation to expand the knowledge and understanding base of its populace constantly. Americans will have to understand the different cultures residing within and beyond our borders, while simultaneously being comfortable with new means of communication, new ways of diagnosing and treating diseases, new weapons systems, and the other capabilities that science and technology will bring.

The Research University

Central to our maintaining leadership in both research and the education of our populace are the research universities. These universities perform over half of federally supported basic research and about a third of all federally supported civilian R&D. As an integral part of this effort, they train a large fraction of the nation's Ph.D. scientists and engineers. Thus, they are extremely important to the national research effort. Similarly, the federal government is extremely important to the research universities, since it provides about $15 billion per year or approximately 60% of the support for university R&D. It is, therefore, vital to both sides that the federal government-university research partnership remain healthy.

While focusing on the research partnership, it is also important to remember that the research universities share responsibility for post-secondary education with four-year colleges and community colleges. It is vital to the nation, as well, that this higher educational system provide excellent education, increase the portion of the ever-more-diverse U.S. resident population that it educates while continuing to attract bright and capable students from around the world. Since the U.S. does not have a national university system, the federal government depends on, and expects, the private and other public sectors to perform these functions. Fiscal and other policies related to the research partnership should be consistent with that expectation.

Reviewing The Partnership

In the mid-1990s, leaders from state governments, industry, and

academia, as well as the President's Committee of Advisers on Science and Technology, spoke to President Clinton of tension in the partnership. They spoke of the cap on recovery of administrative costs, the introduction of cost accounting standards, the increasing requests for university sharing of research costs, and the imposition of a variety of compliance responsibilities, without corresponding cost recovery, as causes of the tension. There was a belief in academia that the government was shifting research costs to the universities. The President responded in September 1996 by directing the National Science and Technology Council (NSTC) to conduct a review of the government-university research partnership.

The NSTC established a Task Force for this purpose, which included high-level officials from the Department of Agriculture, Department of Defense, Department of Energy, National Aeronautics and Space Administration, National Institutes of Health, National Science Foundation (NSF), Office of Management and Budget (OMB), and Office of Science and Technology Policy (OSTP). The Task Force was to review the government-university research partnership and recommend ways to strengthen it. It was well underway when I arrived in Washington in November 1997 and became its Chair. It had, in turn, created an Interagency Working Group (IWG), chaired by Sybil Francis, that did much of the thinking and work. It also sought input from the academic community. The report, *Renewing the Federal Government- University Research Partnership for the 21st Century* [1], is a product of those efforts.

The report proposes four guiding principles:

1) Research is an investment in the future.
2) The linkage between research and education is vital.
3) Excellence is promoted when investments are guided by merit review.
4) Research must be conducted with integrity.

These are supplemented by six operating principles:

1) Agency cost sharing policies and principles must be transparent.
2) Partners should respect the merit review process.
3) Agencies and universities should manage research in a cost-efficient manner.
4) Accountability and accounting are not the same.
5) The benefits of simplicity in policies and practices should be weighed against the costs.
6) Change should be justified by need and the process made transparent.

"What funds should a university use to pay its share of the cost sharing?"

Recognizing that it is important that all members of a partnership agree on its principles, OSTP, the Federal Demonstration Partnership (FDP), and the academic community have sought comments on them and suggestions for their improvement. The report has been posted on the Web, along with a means to comment, and several workshops have been held. This article arises from one of them, devoted to cost sharing issues, organized by the University of California, Stanford University, and the FDP, that was held in San Francisco on December 2, 1999. The IWG, now under the leadership of Anne-Marie Mazza, will be considering these comments carefully as it refines the principles.

The Cost Sharing Issue

Three aspects of cost sharing dominated the comments on the partnership from academia during my first year at OSTP:

1) Bidding wars - We heard allegations repeatedly that program officers were using bidding wars on cost sharing to make decisions about which institutions would receive research awards.
2) Distortion of university goals- The distortion of institutional goals was described most effectively by one president of a southern public university. He said that the university had very limited discretionary funds and that he believed they would be best spent on building up the humanities. He found it difficult, however, to deny a faculty member the money for cost-sharing when it was needed to secure a research contract or grant, given the importance of research to keeping his faculty vital.
3) Voluntary faculty cost sharing – This is the reduction in a university's indirect cost recovery which may result from faculty members spending greater fractions of their time on research than they had agreed to when the research contracts or grants were negotiated.

As the working group proceeded, a number of important questions about cost sharing surfaced. The working group was considering the question of

whether the cost sharing expectations of the agencies should be made explicit. Our first reactions were positive. A clear statement of cost sharing expectations in any program announcement or proposal solicitation would eliminate the bidding wars.

It soon became apparent, however, that an explicit statement of an appreciable cost sharing expectation could prevent an outstanding faculty member from an institution with limited means from submitting a proposal. If the cost-sharing provisions were made explicit, the scientist would recognize that the program officer would have no flexibility to reduce the cost sharing required, even though the proposal was judged to be worthy of support and the program officer recognized the institution's inability to share the costs. As a consequence, the nation could be failing to get the contributions of outstanding researchers because of explicit and non-negotiable cost sharing requirements.

Along the same lines, the IWG asked whether cost sharing is distorting the merit review goals through intra-university processes. A wonderful aspect of the American system is that any faculty member can submit a proposal with the expectation that it will be assessed via a just merit review process. A young person can try out his or her ideas and can compete against those who are more established, for example. The primary funding is not controlled by a senior professor or dean, as it is in parts of Europe and Asia. The requirement of significant cost sharing shifts the decision making away from the merit review process towards those who control the institutional purse strings. As a consequence, the nation could lose the contributions of an outstanding scientist who speaks out against some university policy, for example.

The second large question was, "What funds should a university use to pay its share of the cost sharing?" Should it come out of tuition income? Should it come out of income from the endowment, or from contributions by alumni and other donors? Is cost sharing a shifting of research costs from the federal government to the states when public universities are involved? Is it, as expressed above by a university president, shifting resources from other important educational goals to research? These questions necessarily lead policy makers to the question, "What is the proper balance between research cost sharing expectations and the goal of educating a greater fraction of our populace?"

> The net outcome of this policy could then be reduced faculty effort on research the government values highly.

Finally, the existence of significant cost sharing leads one eventually to ask, "What is the meaning of a national priority?" For example, last year's Presidential budget proposal and subsequent appropriations made it very clear that the Administration and Congress share a belief that information technology and health research should be expanded substantially. Large funding increases were provided. Given the magnitude of these increases, is it right to expect the universities to divert funds from other educational responsibilities in order to match, partially, the federal increases associated with the priorities?

Fortunately, the NSF leadership was thinking along the same lines, so that new cost-sharing policies were published in 1999. These indicate that the mandated (statutory) cost sharing (1%) is required of all grants, but that this is the only cost sharing to be applied to unsolicited proposals. I believe that virtually all the relevant higher education institutions can deal with this level of cost sharing, so that the merit review process and institutional goals need not be distorted. The policies also require a reduction in scope if the budget is reduced by more than 10% from that proposed, thus ruling against subtler methods of eliciting cost sharing.

The NSF can, however, require substantial cost sharing when the grant or contract provides tangible benefit to the institution that is beyond the scope of the standard NSF research grant. That benefit might be an expensive instrument to be used by a number of faculty or some other form of institutional infrastructure. Under these circumstances, the cost sharing requirements are to be clearly stated, but the type of institution may be taken into account. Since the improvement of institutional infrastructure is an accepted and appropriate use of university funds, this form of cost sharing seems quite appropriate.

Thus, the NSF policies appear to address all our concerns about explicit cost sharing. The IWG is, however, anxious to hear the views of the university community on this matter.

The treatment of so-called voluntary cost sharing is a much more complex matter. The classical situation is one in which a faculty member makes a commitment to work, say, 20% time on a grant, which would be charged to the grant as a direct cost. Then, new data are found which are exciting. The faculty member increases the

effort devoted to the project to 30% by working nights and weekends, but without reducing the time allocated to other responsibilities and without charging the extra 10% to the grant. The government now considers that extra time as voluntary cost sharing.

The net financial consequence of the government explicitly noting that the faculty member is working extra hours is that the university will receive less facility and administrative (F&A) cost recovery than it would have had the time not been recognized.[2] These extra working hours have only recently become an issue, when government auditors began to interview faculty during audits to determine if they actually worked more than originally planned.

From an audit perspective, the recently initiated practice is logical. Simply stated, the institution responsible for the direct costs of the research should pay the associated F&A costs.

The government does, however, face a dilemma. The research being performed is highly valued by the government. Funding has usually followed a review which indicates that the proposed research is both of very high potential quality and consistent with governmental program goals. Thus, the government benefits from the time the faculty member volunteers. If the government had to pay the direct costs associated with this extra work time, they would be considerably greater than the F&A costs.

Moreover, it is recognized that a number of private academic institutions, like M. I. T. and Stanford University, deliberately decreased the fractions of academic year faculty time charged to government grants and contracts markedly over the past couple of decades. A reversal of these practices could well lead to greater direct payments of academic year faculty salaries.

It is also recognized that a number of universities are urging their faculty to avoid voluntary cost sharing. That is, the administrations are urging the faculty to spend no more than the time that was committed to the research in the budget negotiation. Many of these scientists were already facing quite real conflicts between time spent on research and time spent with family. These new policies also put them in conflict with their university administrations when they put in extra hours on the research. The net outcome of this policy could then be reduced faculty effort on research the government values highly.

Thus, we in government must weigh the benefits of valid audit policies and consequent F&A cost savings against possible reductions in faculty effort devoted to research and the consequent decrease of our national research productivity. In considering this dilemma, we must also note that the F&A cost savings go to fund additional research. Thus, the trade-offs are complex.

The IWG is, therefore, preparing cost sharing options to be considered by the Task Force. The Task Force will, in turn, be obliged to consider the joint goals of educating our populace to ensure a vital and effective workforce and maintaining the strength and breadth of our academic research community as it examines these options.

NOTES

[1] *Renewing the Federal Government-University Research Partnership for the 21st Century*, National Science and Technology Council, NSTC Presidential Review Directive – April 4, 1999

[2] Editor's Note: For an explanation of how cost sharing affects facility and administrative costs refer to Richard P. Seligman's article, "An Introduction to Cost Sharing: Why Good Deeds Do Not Go Unpunished," also appearing in this issue.

Cost Sharing - Past, Present - and Future?

Robert B. Hardy
National Science Foundation

Abstract

Concerns about cost sharing have characterized the federal government-university research relationship for over 40 years.

Inability to resolve the procurement vs. assistance conundrum identified by the Commission on Government Procurement in 1972 is an important aspect of the concern. More recently, the cost sharing debate has centered on systemic shifting of the costs of research from the government to the universities. Universities also have expressed great concern about the failure (perhaps deliberate) on the part of federal research-supporting agencies to be clear about their cost sharing expectations.

The recent report in response to the Presidential Review Directive on the Government-University Research Partnership may offer real opportunities to address some of the persistent issues about cost sharing.

This article reviews these developments and offers some suggestions for a continuing dialogue on these issues between government and the universities.

Introduction

Of all the issues that have characterized the federal government's support of university research, cost sharing may be the most persistent. Controversy over the issue has a long history. For example, over 25 years ago the report of the Commission on Government Procurement recommended (Recommendation B-8) that the government "Eliminate cost sharing on R&D projects, except in cases where the performer of the project would clearly benefit, e. g. through economic benefits on commercial sales. Decisions with respect to placement of R&D contracts or grants should not be influenced by potential involvement in cost sharing." The Commission report summarized many of the discussions and studies of cost sharing that had taken place throughout the 1960s. The report indicated that ". . . . the overwhelming burden of cost sharing is carried by academic institutions, since they are the primary performers of basic research."

The Commission recommendation went nowhere, mainly because the research funding agencies could not agree among themselves as to the appropriate policy towards cost sharing. The Commission Report itself recognized the dilemma. It stated "The rationale for cost sharing derives from the attitude that the support of research is philosophically different from procurement of research. In the latter case, the Government is guided by the principle that it is prepared to pay the full cost at fair market value of any item it procures to fulfill its mission. In the case of research support, the relationship between Government agencies and private research performers is presumed to include a mutuality of

interest which warrants a sharing of the costs of such research."

As with so many other longstanding issues in science policy, in one sense the cost sharing issue goes back to Vannevar Bush. His landmark report, *Science, the Endless Frontier*, essentially set the course for government support of scientific research at colleges and universities in the postwar years. In the report he suggested that government support of university research "should be conducted, in general, on an actual cost basis without profit to the institution receiving the research contract or grant." University officials often claim that the government, by requiring cost sharing, has breached a promise to universities to provide full cost reimbursement for sponsored research. This view may harken back to Bush. It is not clear that such an explicit promise ever was made as official government policy.

In a 1972 article in *Science* magazine, Raymond Woodrow, then associate treasurer at Princeton University, pointed to various adverse consequences for universities from requirements for cost sharing on federal research. These principally involved the alleged diversion of funds from other important university purposes to share the costs of the government-sponsored research. That issue in one form or another has characterized much of the continuing debate and discussion over requirements for university cost sharing. Interestingly, Mr. Woodrow also indicated that the National Science Foundation (NSF) (along with the the Department of Health, Education and Welfare) probably accounted for the largest proportion of costs that institutions are unable to recover in connection with government-sponsored research.

The view that the government, by requiring cost sharing, is forcing universities to "subsidize" Federal research, applies with clearer force to situations where the government is procuring (buying) research from universities for its own uses. However, as the Procurement Commission suggested, its appropriateness is less clear in support situations where the government is "assisting" research that is conducted as a normal function of the university. NSF, for example, always has viewed research as a normal function of universities and their faculty which is further stimulated or encouraged by NSF funding. In such situations, it seems reasonable for the government to pay only its "fair share" of costs, because there is a mutuality of interest making it appropriate for the costs to be met both by the government and the performer. This basic cost sharing conundrum in the government-university research relationship has never been resolved.

In a 1972 article in *Science* magazine, Raymond Woodrow... pointed to various adverse consequences for universities from requirements for cost sharing on federal research.

Origins of Cost Sharing

When did cost sharing begin? The year 1958 is often regarded as a seminal year in the evolution of federal support of university research because of the initial publication that year of Circular A-21 by the then Bureau of the Budget. This circular established government-wide principles for determining appropriate cost reimbursements for federally-supported university research. But 1958 also marked the formal beginning of cost sharing. The Labor/HEW/Independent Offices Appropriation Act for that year provided that "None of the funds provided herein shall be used to pay a recipient of a grant for the conduct of a research project an amount for indirect expenses in connection with such project in excess of 15 per centum of the direct costs." This limitation in effect constituted a de facto cost sharing requirement. The percentage limitation was adjusted several times in subsequent appropriations. These limitations led to much discussion and an outpouring of literature, mostly favoring full cost recovery in federal research. In 1965 a report of the House Subcommittee on Science, Research and Development came out against indirect cost limitations as inequitable, but recommended retaining cost sharing per se.

As a result, the Appropriations Act provisions for HEW and Independent Offices was amended for FY 1965 to state: "None of the funds provided herein shall be used to pay any recipient of a grant for the conduct of a research project an amount equal to as much as the entire cost of such project." In 1969 the Senate Subcommittee on Government Research held hearings on federal support of project grants, in the course of which there was much discussion of cost sharing. New language subsequently was inserted in the FY1970 Independent

Offices Appropriations Act - "None of the funds provided in this Act may be used for payment, through grants or contracts, to recipients that do not share in the cost of conducting research resulting from proposals for projects not specifically solicited by the Government; Provided, that the extent of cost sharing by the recipient shall reflect the mutuality of interest of the grantee or contractor and the Government in the research." Basically, this provision has remained in the Independent Offices Appropriation Act (which includes funding for the National Science Foundation) ever since.

The Executive Branch responded with its own cost sharing requirements in 1965, with the issuance of Circular A-74. That Circular was replaced in 1970 by Circular A-100, "Cost Sharing on Federal Research" (which was converted into GSA Federal Management Circular 73-3 in 1973). A-100 indicated that "participation by performing organizations in the cost of conducting research projects is intended to serve the mutual interests of the Federal Government and the performing organizations by helping to assure efficient utilization of the resources available for the conduct of research projects and by promoting sound planning and prudent fiscal policies by the performing organizations." It provided that where cost sharing is not required by statute, "agencies shall encourage organizations to contribute to the cost of performing research under Federal research agreements unless the agency concludes that a request for cost sharing would not be appropriate. . . (because of circumstances mostly relating to clear procurement situations)."

As to the appropriate amount of cost sharing, the Circular recognized that this could vary in accordance with a number of factors. For educational institutions, the Circular suggested that cost participation "should normally be at least 1 percent of the total project costs," but in most cases less than 5%. "However, in some cases it may be appropriate for educational institutions to provide a higher degree of cost sharing, such as when the cost of the research consists primarily of the academic year salary of faculty members, or when the equipment acquired by the institution for the project will be of significant value to the institution in its educational activities."

OMB rescinded FMC 73-3 in 1981. The Fact Sheet accompanying the OMB recision memorandum, signed by then OMB Director David Stockman, indicated that the circular was being rescinded as part of the new Reagan Administration "efforts to reduce government regulatory requirements." The memorandum stated that "cost-sharing is still required by current law but, unlike the requirements of the circular, such cost-sharing need not be applied to each contract and grant." According to the memorandum, Circular 73-3 had "provided for cost-sharing on each and every grant and contract and led to extensive record keeping requirements."

The recision of Circular 73-3 marked the end of government-wide guidance on when and how much cost sharing should be required in federally-supported research. (A-100/73-3 lives on, however, in NSF's implementation of its statutory cost sharing requirement. NSF requires more than "token" participation, which NSF defines as one percent of total costs, consistent with the old A-100 guidelines.) The only current government-wide directive which deals with cost sharing is OMB Circular A-110 (first issued in 1976), which sets forth uniform administrative requirements for grants and agreements with institutions of higher education, hospitals and other non-profit organizations. That Circular (Section . 23) defines allowable cost sharing and also sets forth parameters for establishing the value of recipient contributions of services and property, and buildings or land. But it provides no guidance as to circumstances in which cost sharing might be appropriate, or for determining the appropriate amount.

Cost Sharing through Indirect Cost Limitations

The above (necessarily selective) discussion of the history of cost sharing requirements in federal research is intended only to illustrate the persistent nature of the issue and the long background of statutory and administrative requirements regulating cost sharing. The policy debates and discussions about cost sharing that characterized the 1960s and early 1970s never really went away. Efforts continued to be made by university groups to eliminate statutory cost sharing requirements. The statutory cost sharing requirement for DHEW's successor, the Department of Health and Human Services, which includes the National Institutes of Health (NIH), was eliminated in the mid-1980s. In the case of the National Science Foundation, cost sharing received increased attention in the 1980s when NSF launched a series of programs explicitly conditioned on "leveraging" NSF funds.

These programs required or strongly encouraged matching from industry and state and local governments as well as universities (e.g., Engineering Research and Supercomputer Centers, Presidential Young Investigators program, Experimental Program to Stimulate Competitive Research [EPSCoR]). However, the policy debate about cost sharing to some extent was overshadowed in the 1980s and 1990s by extensive discussions of appropriate indirect cost reimbursements to institutions under the cost

principles set forth in OMB Circular A-21. Limitations or "caps" were proposed several times by OMB during those years. In the 1991 version of Circular A-21, a 26% cap was imposed on the administrative cost component of indirect costs. Statutory limitations on indirect costs such as first imposed by Congress in FY1958 also never went away, and continue today (for example, the Department of Agriculture has a statutory cap on indirect costs for competitive research grants which currently is 14% of total federal funds awarded). The indirect cost issue is inextricably linked to cost sharing, but it otherwise is a separate and complicated subject which requires much greater discussion than is possible within the scope of this paper. The point, however, is that caps or limitations on indirect cost reimbursements, no matter how imposed, in effect are a form of mandatory cost sharing.

The Procurement Commission came at the cost sharing issue more from the procurement side of the spectrum of government support of R&D. On the other hand, the Congress has tended to view the issue more from the support or assistance aspect, as reflected in the various statutory cost sharing requirements. The federal agency that has tended to be most identified with cost sharing - the National Science Foundation - is by its mission and functions farthest on the assistance end of the R&D spectrum of all the major federal research agencies.

Regardless of the funding paradigm, there also are difficulties defining concepts such as "full costs," "fair share," etc. Some of the changes in A-21 over the years have heightened these definitional concerns. In any event, a number of recent developments suggest that the issue of cost sharing once again has moved to the forefront of concerns in the government-university partnership in research.

Current Issues in Cost Sharing

> The indirect cost issue is inextricably linked to cost sharing....

In September 1996 the Assistant to the President for Science and Technology issued a Presidential Review Directive (PRD) directing the National Science and Technology Council (NSTC) to review the government-university partnership in research and associated educational activities, and to recommend ways to strengthen it. The PRD was issued following upon a number of expressions of concern to the President from industry, political and education leaders about the stresses universities were experiencing and whether the federal government might be contributing to them. These concerns led the President's Committee of Advisors on Science and Technology to send the President a letter recommending a government-wide policy and administrative review of the U. S. university research system. Among the stated goals of the NSTC review was to "ensure fair allocation of research costs."

The NSTC established an interagency task force, which in turn established a working group to conduct the review. Among the initial activities of the working group was to survey universities and university associations to obtain their input as to concerns in the partnership. Over 40 responses were received, representing the views of hundreds of universities. While a diversity of views was expressed, one of the issues mentioned with the highest degree of frequency in the university responses was cost sharing.

There were a number of aspects to the cost sharing concerns. One was a concern that in recent years the government had shifted an increasing share of costs of sponsored research to the universities. Some of the responses to the PRD survey strongly asserted that the government was "pushing costs off" to universities, both directly through an increasing number of program-specific cost sharing requirements and indirectly by reducing indirect cost reimbursement through successive changes in Circular A-21.

There is some evidence, both statistical and anecdotal, to support this claim. For example, according to NSF data, the percentage of federal support for academic R&D has declined, from 68. 9% in 1973, to 60% in 1997. (State and local government support also has decreased; industry support has increased but is still a relatively small percentage of the total; support from all other sources has remained fairly constant.) At the same time, institutional support for R&D has steadily increased (from 11% in 1973 to over 18. 5% in 1997). Also, R&D budgets have decreased in recent years in agencies such as DoD, NASA, and DoE, and the costs of performing research have increased (of course, much more analysis is necessary to fully understand the effect of these factors). A study done in 1997 under contract to NSF by Dr. Irwin Feller at Pennsylvania State University found "pervasive increases in Federal agency matching and cost sharing requirements" based on survey responses from 242 administrators at 143 universities (representing 80 percent of total academic R&D expenditures in FY91). Nearly two-thirds of the respondents reported increases in matching and cost

sharing requirements and practices since 1990 (although Dr. Feller was unable to obtain hard data on the magnitude of the matching funds or cost sharing contributions).

Input to the PRD group from federal agencies expressed similar concerns. For example, a number of agencies pointed to the recent changes to Circular A-21 as the principal sources of stress in the government-university partnership. The result was to mandate systemic cost sharing. Concerns were expressed that negotiation of government-wide indirect costs, on any basis other than reimbursement of all legitimate costs, forced cost sharing even for programs where cost sharing was clearly inappropriate. The response to the PRD survey of the Federal Demonstration Partnership (FDP), a cooperative activity comprised of 65 academic institutions, 11 federal agencies, and 6 affiliate member associations, stated "federal costing policy focuses on cost shifting of both direct and indirect costs to research institutions. Pressure to waive indirect costs as cost sharing comes at the same time that universities are trying to cope with changes, which are specifically designed to reduce university direct and indirect costs. Examples include the (A-21) 26% cap on the administrative component of the indirect cost rate, (NIH) salary caps, and a categorization of certain types of costs as indirect. In addition, by not allowing the direct charging of secretary and clerical costs (one of the recent A-21 changes) at the same time the administration component of the indirect cost rate has been capped, many of the unfunded administrative responsibilities are now carried out by faculty researchers. . . ."

These responses and studies appear to provide strong support for the "cost shifting" concerns. However, a range of additional concerns about cost sharing also were expressed in the responses to the PRD, as well as identified in Dr. Feller's report.

One concern might be characterized as unclear "rules of the game." For example, there is considerable ambiguity in the language used in NSF program announcements regarding cost sharing. A number of NSF program announcements contain language to the effect that cost sharing is "encouraged but not required." (Similar language can be found in program announcements of other agencies, e.g., DoD.) The most extreme example of ambiguity found in an NSF program announcement may be a statement that cost sharing is not required but that goes on to say it will be a factor in the evaluation! University officials also have expressed concerns to NSF about the need to better understand the "rules of the game," particularly as to whether cost sharing is to be used to determine proposal eligibility or as a factor in the evaluation and selection process. One important implication is that use of cost sharing as an evaluation factor could undermine merit as the basis for review and selection of projects for funding. Dr. Feller's study confirmed concerns by universities about the absence or disregard of agency criteria or ground rules pertaining to cost sharing. The input to the PRD also identified concerns about lack of clarity in agency cost sharing expectations.

> Many of the unfunded administrative responsibilities are now carried out by faculty researchers....

Another aspect of the cost sharing concerns is what Dr. Feller characterizes as "de facto bidding wars for Federal awards," brought about by intensified competition for federal research funds. This in part relates to the issue of ambiguity in agency cost sharing expectations, which according to Dr. Feller "can set in motion competitive dynamics that produce an upward ratchet on bids, with the average matching fund offers of winners in early rounds serving to establish a minimum for bids in successive rounds, atop which aspiring competitors offer more." In other words, universities are forced into "gaming" cost sharing in grant competitions, with agencies in effect conducting "silent auctions." It also appears to be an article of faith among many principal investigators that substantial cost sharing is necessary for their proposals to be competitive. (It is not clear this is grounded in any objective reality but the perception persists.)

The "auction" type of concern also may come into play at the stage of budget negotiations between agency program officials and principal investigators. Program officers typically reduce the amounts requested in proposals, but may expect the project still to be carried out as originally proposed. If a budget reduction is not accompanied by a change in the scope of the project, the effect is for cost sharing to be presumed by the agency without it ever being made explicit. In effect the program officer may look for the best "deal," or the most research he or she can fund with the least commitment of agency resources. As discussed in the PRD report, "Actions taken by program managers may make sense from an individual program perspective - cost sharing can be a means of maximizing the number of awards

within limited budgets - but the cost/benefit analysis may look different from an agency or even a national perspective." The cumulative effect of such "ad hoc cost sharing practices can have a detrimental impact on the university research and education system as a whole (for example, by drawing funds for research from sources that would otherwise support undergraduate education)." This echoes the concern expressed many years earlier by Raymond Woodrow.

There is one other significant aspect of the cost sharing concern that arises in the situation where universities contribute cost sharing through faculty effort that is not otherwise formally reflected in the project budget or required by the agency. OMB Circular A-21 classifications of different categories of research costs, coupled with the "consistency" requirements in the Cost Accounting Standards (CAS) imposed on universities in another of the recent A-21 changes, have resulted in heightened auditor attention to the amount of faculty effort spent on federally sponsored research projects. Recent auditor interpretations of A-21 and CAS suggest that the costs of such contributed effort should be classified as "organized research" costs, particularly if the effort was informally committed in proposal texts or otherwise "expected" by the agency. The result is the institution's indirect cost recovery is reduced on all sponsored awards because it has to adjust its indirect or "F&A" rate (in current A-21 terminology) for this contributed effort. (The F&A rate is expressed as the relationship of research indirect costs to direct "organized research" costs. When the denominator in this equation ["organized research" costs] increases through the addition of such "contributed" effort, the effect is to drive down the recovery since the F&A rate is applied to a larger base.)

This development has exacerbated concerns about federal requirements for universities to precisely account for faculty effort. Concerns about the Cost Accounting Standards were mentioned with a high degree of frequency in the university responses to the PRD survey. This led to a specific discussion of the "contributed effort" issue in the PRD report. The basic concern is that while such accounting requirements may have a basic logic, the effect is to create a disincentive for institutions to participate in and have their faculty contribute effort to the federally-supported research enterprise. In one sense, this controversy brings us back to the old distinction between "procurement" and "assistance," the focus of so much attention during the era of the Procurement Commission. Detailed cost accounting requirements such as provided by the CAS seem appropriate to a buyer-seller relationship (indeed the CAS originated with and still mostly pertain to government transactions with defense contractors). In such a relationship the purchaser needs to assure itself that it is not subsidizing other activities of the seller. Their applicability is less clearly appropriate in an "assistance" model where the government is in a support mode.

From a research agency perspective, to require accounting practices that create disincentives for faculty to contribute effort to federally-sponsored research is counterproductive. Also, a major consideration in government investment in university research is the synergy that results from the simultaneous generation of new knowledge and its transmission to the next generation of scientists and engineers through instruction and training of the students who participate in the research. These activities cannot be neatly segmented as implied by the cost accounting rules. Nor is strict accounting for faculty time inherent in the nature of the transaction. In this situation the emphasis is more appropriately on the scientific accountability of the research supported. On the other hand, a corollary of this is that cost sharing does not seem appropriate in a buyer-seller, or procurement, transaction.

Many of these cost sharing issues were addressed in the PRD report. The report stated as one of its "Operating Principles" that Agency Cost Sharing Policies and Practices Must be Transparent. In discussing this Principle, the report stated, "As in any investment partnership, each partner contributes to the research endeavor. While the primary contribution of universities is the intellectual capital of the researchers' ideas, knowledge and creativity, it is sometimes appropriate for universities to share in the costs of the research (and in some cases cost sharing is required by statute). Cost sharing can be appropriate when there are compelling policy reasons for it, such as in programs whose principal purpose is to build infrastructure and enhance an awardee's institution's ability to compete for future Federal awards. Cost sharing is rarely appropriate when an awardee is acting solely as a supplier of goods or services to the government since this would entail a university subsidy of goods purchased by the government. If agency funds are not sufficient to cover the costs of a research project, the agency and the university should re-examine the scope of the project, unless there are compelling policy reasons to require university cost sharing. Agencies should be clear about their cost sharing policies and announce when and how cost sharing will figure in selection processes, including explicit information regarding the amount of cost sharing expected."

The PRD report went on to identify three specific issues pertaining to cost sharing meriting

action:

1) Lack of clarity about agency cost sharing expectations creates difficulties. The discussion of the recommendation pointed to the need to "ensure a level playing field" by setting forth the "rules of the game." ". . . It would be helpful if agencies announced, in advance, as part of their request for proposals in program announcements, if cost sharing is a criterion of award selection, and how, including explicit information regarding the amount of cost sharing expected and about the process by which cost sharing will be considered."
2) The federal requirement that institutions absorb the overhead costs associated with voluntary cost sharing in the direct costs of a research project can create a disincentive against voluntary contributions of faculty time. "Moreover, faculty donate time to other activities that are central to the working of the research enterprise, yet this donated time is not a factor in calculating F&A rates, nor should it be, as these duties are rightly considered by the university as part of the faculty's responsibilities. For example, agencies rely extensively on the expertise of university scientists and engineers to serve on agency advisory panels, peer review panels, and committees, often with no compensation, providing critical input that enables agencies to shape their research agenda and foster research excellence. Such activities are vital to the functioning of the partnership; indeed, they are central to it."
3) Limitations on institutional reimbursement of research costs on otherwise allowable costs should be reviewed. "Mandatory cost sharing stems from Federal cost principles and some statutes that limit institutions' recovery of costs that are otherwise reimbursable, including limitations on indirect cost rates established by legislation. An issue of current concern to some agencies and universities involves the cap on administrative costs as it impacts universities that administer R&D laboratories for Federal agencies or have other relationships with the government that have procurement aspects. For relationships that are solely procurement in nature, the cap on administrative costs inappropriately forces universities to share in the administrative costs for the goods and services purchased by those agencies...."

> Another aspect of the cost sharing concerns is what Dr. Feller characterizes as "*de facto* bidding wars for Federal awards."

The PRD report, and the other sources of input mentioned above, provide a good summary of current cost sharing issues and concerns. As we have seen, in many respects these can be traced back to much earlier concerns about cost sharing in the government-university relationship in research. In fact, earlier in the 1990s a report of the Federal Coordinating Council for Science, Engineering, and Technology (FCCSET), predecessor of the current NSTC, had identified cost sharing as a major issue. That report, *In the National Interest - The Federal Government and Research-Intensive Universities* (1992), noted "The costs of research performed by universities and the appropriate sharing of these costs between the universities and the Federal government have long been a source of controversy. . . specific polices have varied and some controversy stems from differences in purposes of research funding by Federal agencies. In many cases, agencies are procuring specific research services or products from the universities. In others, the principal purpose is to underwrite university research and research infrastructure; in the latter case it is reasonable that the universities share the costs as well as the benefits of the investment."

The FCCSET report went on to assert, "Federal reliance on cost-sharing and leveraging arrangements with universities has increased. These arrangements frequently serve as a requirement for the applicant's inclusion in competition for funding. Requirements for sharing of costs of research by academia and other sectors help to conserve limited Federal funds at the same time that they assure real commitment to the project by the other participants. However, such cost sharing requirements can result in long-term financial obligations that may exert pressures on other university missions."

The report made several recommendations in this area, including that "the Federal government should systematically review and, if necessary, clarify and simplify cost sharing guidelines and principles in major research projects with universities."

The FCCSET report predates

the current PRD report by over six years. Yet clearly there is overlap in the issues identified in the cost sharing area. Given this overlap, and the long history of these issues, is there any reason to believe that the future holds any more hope for addressing and resolving some of these issues than has been the case before?

> NSF was reported...to be "most prone to impose cost sharing through formal policy and *de facto* practice."

Cost Sharing-The Future?

In his 1972 *Science* article, Raymond Woodrow identified the National Science Foundation (NSF) as accounting for the largest proportion of university cost sharing on federal research. Twenty-five years later, Dr. Irwin Feller's study found that of the federal research agencies, NSF was reported by his survey respondents to be the NSF was reported by his survey respondents to be "most prone to impose cost sharing through formal policy and de facto practice." Obviously little had changed over that time in terms of NSF and cost sharing.

Responding to the many concerns expressed by the research community, in May of 1999 NSF's governing Board approved a new cost sharing policy. Key aspects of the new policy are that:

- In addition to the statutory requirement, NSF should require cost sharing only when there is tangible benefit to the award recipient(s) beyond the immediate term or scope of the NSF-supported activity. Benefit is defined in terms of capacity building, potential dollar revenues, time frames, or third party users (e.g., awards for instrumentation/equipment/centers/facilities or where there is clear potential to generate income such as curriculum development).
- NSF cost sharing requirements beyond the statutory requirement will be clearly stated in the program announcement, solicitation, or other mechanism which generates proposals. Language will be specific so that eligible institutions will understand the parameters within which cost sharing is expected.
- NSF-required cost sharing will be considered as an eligibility rather than review criterion. Any negotiation with proposers as to the level or amount of such cost sharing will occur either prior to the review process to establish the project's eligibility for consideration or after merit review has been completed.
- For unsolicited research projects, only statutory cost sharing will be required. NSF program officers must follow current guidance that states they may discuss with principal investigators the "bottom line" award amount, but may not (re)negotiate or impose cost sharing or other institutional commitments.
- Any reduction of 10% or more from the amount proposed should be accompanied by a corresponding reduction in the scope of the project, unless the program officer, principal investigator, and institution clearly agree that the project, as proposed, can be carried out at a lesser level of support from NSF with no expectation of any uncompensated institutional contribution beyond that formally reflected as cost sharing.

The new NSF cost sharing policy attempts to address many of the issues discussed above. It responds to the PRD principle that Agency Cost Sharing Policies and Practices Must be Transparent. By no means does it address all cost sharing issues, such as NSF's longstanding aversion to providing academic year faculty salary support in many of its research programs. Nor does it answer all the questions that may arise in implementation, such as how cost sharing that is offered above whatever the minimum requirement applicable to the proposal should be treated in award decisions. On the one hand, consideration of any cost sharing above the applicable "floor" still could encourage the kind of "bidding wars" that Dr. Feller identified. On the other hand, it is difficult to see how program officials should not consider the total level of resources available for the project in making funding decisions. NSF intends to try to work out these and other issues as the new policy is implemented, but there are no perfect answers to these questions.

An action plan to follow up on each of the recommendations in the PRD currently is under development. Responses such as the new NSF policy and similar steps by other agencies to clarify their cost sharing practices and guidance presumably will be part of the plan. However, the cost sharing issue is so longstanding and so fundamental to the government-university relationship in research that no one

report or set of recommendations, no matter how well intentioned or sincerely implemented, is likely to solve all the problems. As Dr. Feller noted in the conclusion of his study: "Widespread and increasing use of matching and cost sharing requirements and practices permeates all forms of federal government support of academic research." Dr. Feller went on to note that this, coupled with the increased number of universities competing for federal research awards, has resulted in a dysfunctional process characterized by less than optimal allocation of research awards, unplanned aggregate fiscal stresses on universities, and the corrosion of relationships both between universities and the government and between university research administrators and faculty. Willingness or ability to provide cost sharing, for example, may have no relationship to scientific merit. And yet it may be an important factor in agency decision making.

What else might be done to address this situation? For one thing, a better understanding of the terms of the relationship between the government and universities might help. The procurement/assistance dichotomy identified by the Procurement Commission remains an issue. This distinction always was oversimplified. For example, DoD traditionally has viewed much of its support of university research as having both assistance and acquisition aspects. Still, there is force in the distinction. Twenty years after the Procurement Commission, the FCCSET Report contrasted "procurement" relationships between the federal government and universities as the consequence of the imposition of specific requirements on the conduct and outcomes of research, with government support for a range of activities to expand the knowledge base of science, engineering, and technology and to strengthen the research and education infrastructure constituting an "investment."

While there have been calls for a restatement of the government - university research relationship as "assistance" (i. e. FDP response to the PRD survey), one size probably never will fit all agency-university transactions. However, the fact remains that most agencies use grants rather than contracts for support of university research. Grants imply a predominantly assistance relationship. Acquisition concepts such as the Cost Accounting Standards may be inappropriate under this model, as discussed above. At the same time, an assistance relationship also implies a sharing of the cost of research between universities and the government. In its plainest form, if the federal government is financially assisting a normal university function for reasons of national interest (NSF's historic position), then the government should not be expected to pay the full costs. A clear agreement between government and universities on these basic concepts would be a step forward.

Experimenting with different support mechanisms also might be appropriate. One example of such an approach is the recent Modular Research Grant Application and Award initiative of the National Institutes of Health (NIH). Under this initiative, applications for NIH R01 grants (competitive individual research project grants) may be submitted in "modules" of $25,000 up to a ceiling of $250,000. A simplified budget is used with no categorical cost breakdowns and a budget narrative that speaks only to the roles and effort of key personnel. Projects are reviewed in terms of the modules comprising the total research effort. The initiative is based on 5 years of pilots in different NIH institutes, and NIH intends to evaluate it over a two-year period.

In some of the explanatory materials for the initiative, NIH notes that too much attention currently is being paid to cost analysis for R01 grants under the $250,000 ceiling more indicative of a procurement relationship. Part of the rationale for the modular initiative is to reaffirm the assistance principle and relationship for NIH support of university research and to reinforce the "grant-in-aid" philosophy, where the outcome is in terms of scientific progress.

The NIH modular initiative does not relate to cost sharing per se, but there are some clear potential implications. For example, the FDP has discussed the concept of a "Basic Assistance Grant." A modular approach to such a mechanism along the lines of the NIH initiative might be envisioned. The modules could be designed to be clearly supplemental to ongoing research of investigators, and provide support for costs such as supplies and minor items of equipment, involvement of students in the research, and possibly summer salary for the investigator. By definition, "contributed" effort by the faculty investigator would be expected, and the A-21 cost principles redefined to eliminate the current attempts by federal auditors to classify such effort as "organized research." The purpose of the government in providing support would be to

> The new NSF cost sharing policy attempts to address many of the issues discussed...

enhance such efforts and achieve important ancillary benefits such as training the next generation of scientists and engineers. There also might be implications for such issues as current government effort-reporting requirements, which attempt to precisely distinguish between "research" and "instruction." A "Basic Assistance Grant" concept would render such distinctions moot, since by definition the government's purpose is to foster both research and training simultaneously. It is even conceivable that the grant might be provided in fixed price modules, thus eliminating most of the controversies associated with the prevailing cost reimbursement approach.

Possibilities of this kind raise the issue of more fundamental changes in current approaches and mechanisms in the government-university research relationship. There clearly is widespread dissatisfaction both among the agencies and the universities with the current system for government reimbursement of the costs of university research. The cost sharing issue is symptomatic of this larger problem. The PRD report highlighted the need to articulate a set of basic principles to guide the overall government-university research partnership. There have been similar calls going back many years. The only source of such principles currently are those implicit in A-21 and other OMB Circulars. A-21, however, is oriented toward financial accounting and delineates allowable costs that the government (unilaterally) has determined it will pay in funding university research, as repeatedly adjusted over a 40-year period to reflect current exigencies. It does not reflect a document developed with a clear consistent rationale in furtherance of a guiding set of principles and objectives.

For fundamental improvements in the current system and for real progress to be made on the set of cost sharing issues, a more sophisticated understanding of and dialogue on the issues in this area between university leaders and government policy makers in both the executive and legislative branches is needed. Questions that might be addressed in a dialogue of this nature include (in no particular order):

- What is the appropriate model(s) for government reimbursement to universities for costs of federally sponsored research? Can we agree on a guiding philosophy, be it "assistance," "investment" or some new compact or paradigm as some have called for? In turn, can a basic set (or sets) of cost sharing principles be developed that is appropriate for today's environment?
- Given the high level of tension and disagreements among all the actors, including the federal auditors, over the current system for government cost reimbursement, what might be a better system and how do we get from here to there?
- Why is it that despite all the complaints and concerns universities raise about cost sharing, invariably universities appear to take the federal research money, regardless of the cost sharing "strings" attached? A related issue is the source of funds for university cost sharing contributions to federally sponsored research. Given that universities have a limited number of funding sources, where does the money really come from and what is the appropriate source(s)?
- Can hard data be developed (or disclosed) that indicates the real magnitude of cost sharing on federally-sponsored research? What is the appropriate degree of government responsibility to assure the financial health of universities if they choose to play in the federal research "game?" Don't universities have a responsibility to manage their costs like other sectors of the economy (including, increasingly, government)?
- How can a sophisticated dialogue be carried on about these kinds of issues in an age of political "spin" and "soundbites?" What messages need to be conveyed both by the research agencies and universities and to whom?

Why is it that despite all the complaints and concerns universities raise about cost sharing, invariably universities appear to take the Federal research money, regardless of the cost sharing "strings" attached?

The final recommendation in the PRD report was to establish a mechanism for continuing review and assessment of the government-university research partnership. Cost sharing and the kind of dialogue suggested above, should be a part of that review and assessment. While the cost sharing issue seems intractable, new approaches to the government-university relationship may yet yield progress. It is long past time.

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Cost Sharing - Just When I Thought I Knew All the Answers

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Abstract

Over the past year, discussions of cost sharing within the federal government-university partnership have reached a new level of intensity. This article addresses the issues that fueled the recent debate and the historical roots of cost sharing and other limitations on the recovery of costs under federally funded research. The author questions whether the concerns that led to cost sharing practices in the early years of the partnership are valid today.

The increasingly more complex environment under which research is supported and conducted confounds reaching agreement on cost sharing. Those involved with the business aspects of research are challenged to work through these complexities and to provide sound advice to researchers and to those who are tasked with making difficult decisions on cost sharing and other critical matters affecting federal support of university research.

The Presidential Review Directive (PRD-4) process is pressing on toward a set of guiding principles for the federal government-university research partnership and recommendations to enhance the effectiveness and efficiency of the partnership. Readers are asked to consider whether, and how, agreement by the federal research agencies and the university community on the resulting guiding principles can positively affect the solutions to cost sharing issues.

Introduction

"Just when I thought I knew all the answers, they changed all the questions." The plaque with this quote hung on my office wall for many years. An employee who was frustrated by several unsuccessful attempts to gain a supervisory position gave it to me. When asked to write about cost sharing, my first thoughts were that I must know some of the answers and that I might offer insights into some of the issues that confound this subject. After much thought, however, I am struck by the fact that not only do I have very few answers, but that I may still be struggling to discover all the questions. Perhaps if together we explore some of the perplexing issues involved, we can find our way to some of the questions, and maybe even some of the answers.

Do the words "inextricably intertwined" ring a bell? This term has been used to describe the relationship between academic research and education when discussing issues such as faculty effort, students participating in research, and related cost allocations and or reimbursement. We could also apply this term to cost sharing as a historically integral component of the government - university research partnership. I must confess that I am amazed by how much has been written on this subject over the past five decades. Within the past year, however, the dialogue on cost sharing within the federal government - university research community has been turned up several decibels. I would like to explore with you some of the background issues that lead us to the current level of very active dialogue on cost sharing and related issues. I will also revisit some of the historical roots of cost sharing and discuss their relevance

to the current environment. Lastly, I will offer some opinions on why cost sharing may remain an issue for the future.

The Current Environment

The National Science and Technology Council review of the government-university research partnership, conducted under Presidential Review Directive (PRD-4), provided an avenue for input from the community on all aspects of the partnership. The report, *Renewing the Federal Government - University Research Partnership for the 21st Century*[1], was not a traditional end of study publication with conclusions and recommendations. Instead, it promoted continued dialogue and feedback through organized public hearings, through the Federal Demonstration Partnership and through independent discussion within the university community. The initial solicitation of input to the PRD yielded considerable feedback on cost sharing and related issues. From that feedback, however, it is difficult to determine whether, or by what amount, cost sharing requirements increased in recent years. This October, however, marks the end of a decade that will not be remembered fondly in the academic community with regard to changes that limited reimbursement under federal awards. Combine these changes with any new or preexisting cost sharing requirements and you get considerable pent-up anxiety with regard to cost recovery under federally sponsored programs. Let us review some of the significant changes that occurred during this period.

In October of 1991, a 26% cap was imposed on the administrative components of university indirect costs. The cap on what is now known as facilities and administrative (F&A) costs was effective for all university fiscal years beginning on or after October 1, 1991, including those previously agreed to by universities with their cognizant federal agencies. This in itself was highly unusual since most revisions to the cost principles in OMB Circular A-21 affecting F&A costs become effective upon negotiation of future rates. The stated purpose of the cap was to curb abuses of university practices involving F&A costs associated with federally funded research. While some argued that limiting the recovery of administrative expenses promoted more efficient and effective business practices at universities, subsequent actions by the federal government caused considerable upward pressure on costs in the capped F&A components. At the time the cap was imposed, the administrative component included general administration and general expenses, departmental administration, and sponsored project administration. A 1993 revision to the Circular redefined the administrative component of F&A rates and in doing so added student administrative services to the capped costs.

A more profound change promulgated with the same revision was the new provision addressing administrative and clerical costs. The stated intention of the new provision was to establish the principle that salaries of administrative and clerical personnel should normally be treated as indirect costs. Direct charging was appropriate only when a project required an extensive amount of administrative or clerical support that was significantly more than the routine level of such service provided by academic departments. Although the interpretive guidance cited the general criteria on determining when costs could be charged directly, it nevertheless appeared at odds with the criterium, which states: "Direct costs are those that can be identified specifically with a particular sponsored project, and instructional activity, or any other institutional activity, or that can be directly assigned to such activities relatively easily with a high degree of accuracy. " Regardless, the bottom line was that the change was implemented with the net result being the inclusion of costs under the 26% cap, which had previously been directly charged.

In the years that followed, changes in government audit and compliance requirements taxed administrative resources and caused additional upward pressure on costs. Universities with administrative component costs at or above the cap had to draw on other institutional resources to pay the higher costs associated with an increasingly robust Compliance Supplement to OMB Circular A-133. Further upward pressure on administrative costs resulted from heightened regulatory emphasis on environmental protection, human, animal, and recombinant DNA research, avoidance of financial conflict of interest, and other related compliance matters. Additionally, universities at the cap were unable to recoup the costs to implement Cost Accounting Standards made applicable by a 1996 revision to the Circular. These universities thus became the first community doing business with the federal government to be precluded from recovery of CAS implementation costs. Such costs were allowable for commercial concerns under Federal Acquisition Regulations (FAR) cost principles and for non-profit organizations, whether under OMB Circular A-122 or FAR cost principles.

While the changes to the cost principles in the 1990s varied from the very blunt imposition of a cap on administrative expenses, to the more subtle refinements in the definitions of direct versus indirect costs, the net result was further limits on cost recovery. In this regard, these limits were not unlike other restraints that have long characterized the federal government's approach to funding

of research at our nation's universities. Some of these restraints evolved from cost sharing practices that began in the early years of the government-university research partnership.

The Evolution of Cost Sharing and Other Limitations on Cost Recovery

This appears to be a good opportunity to reflect on the support model that evolved for the partnership over the past fifty odd years. Of course, no Office of Naval Research (ONR) employee can engage in a discussion of the partnership without quoting Vannevar Bush. His wartime leadership of the Office of Scientific Research and Development inspired others after WWII to petition Congress for the creation of ONR. In his report *Science, the Endless Frontier*, Bush suggested that government support of university research "should be conducted, in general, on an actual cost basis without profit to the institution receiving the research contract or grant."[2] Recently, our colleague Robert Hardy of the National Science Foundation opined that it is not clear that Bush's suggestion was ever made official government policy.[3] I agree, but how and when did we set the course to deviate so dramatically from Bush's suggestion.

Surely, I thought that ONR, having been born out of the collaborative efforts between the military and universities during WWII, would not promote financial arrangements with universities that differed significantly from those with other performers of research for the Department of the Navy. To reinforce my belief I reacquainted myself with the document often referred to as the *Blue Book* in which ONR set forth the first set of cost principles governing research and development contracts with educational institutions. Imagine my surprise at finding the following passage:

> In determining the total cost of Government research projects, no distinction shall be made between "fundamental" and "applied" research. However, when the Government by contract supports a research project of the type which the educational institution concerned might be expected to undertake as part of its own educational and research program, it may be appropriate for the institution to agree in the contract to sustain part of the cost of the project. The sharing of the cost may be accomplished in such case either, (1) by providing in the contract for the percentage of the total allowable cost of the project which will be borne by the Government, (2) by agreeing that, for the purpose of the particular project, reimbursement for the indirect expense of the institution will be limited to some rate or dollar amount less than the indirect expense otherwise applicable and computed in accordance with the principles herein set forth, (3) by providing in the contract that certain items of cost will not be considered reimbursable, or (4) such other method as may be agreed upon.[4]

> "...it may be appropriate for the institution to agree in the contract to sustain part of the cost of the project."
>
> *The Navy Blue Book*

So there we have it. Does this mean that ONR was the culprit? For sure the principles in the *Blue Book* describe a situation for which cost sharing was considered appropriate. But why did ONR, so early in the development of the government-university research partnership, feel compelled to state that cost sharing may be appropriate and to further describe some methodologies for evoking cost sharing provisions in contracts? In an attempt to identify the underlying philosophy, I dug for more information. At this point let me clearly state that my delving into this aspect of the cost sharing in no way reflects an exhaustive review of all the available literature on the subject.

Some light is shed on this subject, however, in passages from a historical appraisal entitled "Pioneering in Federal Support of Basic Research"[5] delivered by Dr. Alan T. Waterman at the Office of Naval Research Vicennial Convocation. Dr. Waterman, then of the National Academy of Sciences, discussed concerns faced by the federal government-university community in the early years of the partnership. It is important to note that Dr. Waterman had a significant role in the development of the partnership having served successively as a key member of the war-time Office of Scientific Research and Development, as the first civilian Chief Scientist and Deputy Chief of Naval Research, and as the first Director of the National Science Foundation. The following are two key passages from his address:

> A unique and highly significant contribution of the ONR was to be the initiation and development of its contract research program. At first this program aroused some consternation in academic and government circles. Federal support would mean Federal control, especially from a military agency . . . .
>
> For the country the ONR was able to take prompt and effective steps to restore research activities for scientists and engineers returning to their institutions, by providing for their research equipment and by helping with their salaries and those of their graduate student assistants. But more than this, in mutual consultation with academic and industrial scientists and administrators the ONR evolved policies and procedures, as I have said, which pioneered the way for increasing participation of the Federal Government in a comprehensive program of scientific research throughout the country. By this means, the Federal Government has been able to enter into a most effective partnership with academic and industrial scientists and engineers, and their institutions, for the prosecution of research in the national interest and in the interest of science.

My purpose in quoting Dr. Waterman was not to bring praise upon ONR, but rather to illustrate that collaboration between the federal government-university research partners helped mold the nature of the relationship. Further, he clearly expressed some of the concerns of the early pioneers involved in the partnership. Did these concerns prompt ONR to include cost sharing as part of the equation? I am most certain that they had some influence.

In 1984, Robert Hardy explored the factors that affected the thinking of program officers with regard to funding of academic year faculty salaries under NSF grants. In his paper "The Faculty Salary Problem: Payment of Faculty Salaries Under NSF Grants"[6], Mr. Hardy cited several concerns, including distortion of university salary structures; impact on academic freedom; and over dependence on federal salary support. Although written about 34 years after NSF's creation, he traces many of these concerns back to the beginnings of the enterprise. So now we have found more than a few indications that in the early years of the partnership both the federal government and university communities had concerns which, at least in part, contributed to the use of cost sharing and other practices which limited reimbursement.

The Federal Influence on the University Research Environment

As noted previously, underlying many of the early partnership concerns, and the measures taken to address them, was the supposition that federal support could alter the nature of academic institutions. Despite these measures, federal funding of research at our nation's colleges and universities has indeed altered the environment under which academic research is conducted. The federal government-university research enterprise has grown from an investment of a few hundred million dollars a year to over $15 billion in fiscal year 1999. This currently comprises about 60% of all support for university research. Viewed as either total volume or as a proportion of all academic research, the federal investment exerts considerable influence on the community. The infrastructure and the scientific/academic talent base have both grown to keep pace with, and have become very dependent on, the federal investment.

One of the underlying themes of the previously quoted passage from the *Blue Book* was the notion that cost sharing may be appropriate when a project is the type that the institution might be expected to undertake as part of its own education and research program. This still has some merit, but if the federal government expects the university-funded portion of research costs to remain constant as a percentage of a growing federal investment, can universities really provide the larger financial contributions that will be needed to meet their share? What will be the impact of diverting funds from other important university functions or the impact of seeking revenue from other sources? If the required additional university funds are not available, then what resulting impact would we expect to see on the research infrastructure or on the entire enterprise?

These are different kinds of concerns than those of the early years of the partnership that focused on the impact of federal funding on the academic environment. They are not so different, however, from periods in the past when the research community focused on whether the federal investment was growing enough or whether it was even keeping pace with inflation.

Once again, a look back into the history of the partnership may shed light on some of these issues. In the 1980s, congressional hearings, surveys by NSF, and other studies attempted to address the impact of the stagnant federal investment in academic research during the 1970s. As compared to the 1960s, the federal investment in the 1970s did not keep pace with inflation. In 1984, Dr. George Keyworth, then the President's Science Advisor and Director of the

Office of Science and Technology Policy, gave testimony during hearings on improving the research infrastructure of colleges and universities before the House Committee on Science and Technology.[7] He cited deterioration of research equipment, aging physical plants, and shortages of faculty in engineering sciences as the principal impacts of the 1970s funding level on the university infrastructure.

If indeed the combination of cost sharing and other limitations on cost recovery are now causing a financial stress on our nation's research universities, should we not have similar concerns? It is very easy to dismiss financial issues when the federal investment in university research is growing. In fact it is often difficult to even raise the issue with those who most influence the research budget because of the belief that a more robust federal research investment is a sure remedy for financial shortcomings. Again, I would take you back to my earlier question: Are universities capable of funding a constant percentage share of a growing research base?

Think again about the impact of federal policies on the enterprise. The first step is to recognize that members of Congress and officials of the Executive Branch are responsible for the prudent expenditure of taxpayers' dollars. To help those of us in the executive agencies carry out our responsibilities, a significant body of law, regulation and policy is brought to bear on how research is administered, how research costs are allocated and reimbursed and how audits are conducted. Most consider the big three behind underlying federal government - university research administration to be OMB Circulars A-21, A-110, and A-133. Because they set standards in their respective areas, these circulars influence the conduct of all university sponsored activities. In addition to the rules for administration and cost reimbursement, societal concerns have led to the enactment of more than 25 laws and regulations dealing with such diverse issues as nondiscrimination, environmental protection, animal care, historic preservation, use of human subjects, and lobbying. Although the research administration community is unable to accurately measure the cost of compliance with these mandates, there is no doubt that substantial implementation costs are borne by the research enterprise.

Now that I have made all this fuss about how the government has influenced academic research, can we really justify cost sharing as something intended to prevent such influence? I think not! There were legitimate concerns early in the partnership both on the part of government and the academic community. Has not the motivation on both sides changed? On the university side, I often am told that cost sharing is part of the university's commitment to research. That is to say that faculty are employed to teach and conduct research. Universities feel compelled to provide funds to departments to stimulate the initiation of research projects, to attract talented faculty, to provide graduate students with opportunities to participate in research as a part of their education, and to demonstrate institutional commitment to outside sponsors. The reality is that we have moved beyond the motivation underlying cost sharing practices of the early years of the partnership; however, the legacy of cost sharing and other restraints on reimbursement have lived on.

Over the life of the partnership, the area most often targeted for limits on reimbursements by the federal establishment has been F&A costs.

Facility and Administrative Costs

Over the life of the partnership, the area most often targeted for limits on reimbursements by the federal establishment has been F&A costs. It should not go unnoticed that the only specific budget element mentioned in the previously quoted passage on cost sharing from the *Blue Book* was "indirect expense". Prior to 1966, congressionally mandated caps on F&A costs affected most of the major research programs of the federal government. Although only a few federal programs currently carry statutory limits on F&A costs, abated indirect cost rates and even waivers of indirect costs continue to be employed as cost sharing methodologies, an obvious carryover from the early days of the partnership. Is this interest, or what some may consider preoccupation, with F&A costs unique to universities? No, it is not. When the Department of Defense acquires goods and services that are not subject to the competitive pricing forces of the commercial marketplace, then other techniques are employed to ensure the public that indirect costs are fair and reasonable. Concerns in this area led to the promulgation of numerous laws, regulations and eventually to Cost Accounting Standards.

With regard to federally funded

university research, we have over the years both called for more precision, but at the same time implemented controls in OMB Circular A-21 which seem to contradict the demand for precision. The 3.6% of modified direct costs allowance for faculty and other professional salaries is an example. While I will not attest to the reasonableness of the 3.6% allowance, it was a negotiated compromise in an area that was frequently debated in F&A negotiations, and it relieved institutions of the requirement to document these costs. The 26% cap may provide the ultimate irony with regard to documentation of costs. Consider how a university's motivation to fully document administrative costs might be influenced by whether its costs are over or under the cap or whether the university uses the alternative method for reimbursement of these costs.

Over time, other changes were made to the cost principles to "simplify" the process, while Cost Accounting Standards were aimed at promoting uniformity and consistency. Unfortunately, the rules are still too complicated for most of us to fully comprehend unless we are regularly involved in some element of the F&A rate setting process. It is no wonder that we research administrators find it extremely difficult to engage in meaningful dialogue with faculty and federal program officials on how to make the system work better for science.

Presidential Review Directive – 4, Solutions for the Future?

Although the dialogue among all the key players is difficult, it is one that has intensified over the past year. Fueled by the PRD and increasingly more robust participation of faculty in the FDP, issues at the confluence of how science is conducted and how it is paid for are being debated among faculty, research administrators, and science policy makers. While we are working with a sense of urgency because of the PRD and the feeling that positive gains need to be made during the current administration, those of us who are a part of the research and research administration communities must be committed to the long haul. Even if we fixed most of what the university community believes is broken with regard to the federal government's cost reimbursement policies, things will not stay fixed if we do not remain attentive to the government - university partnership. History has demonstrated this very clearly.

> Why is it that the federal government seems unable to make up its mind on how to deal with universities?

Earlier I discussed the content of Dr. Keyworth's 1984 testimony to Congress on fixing the problems of a deteriorating university research infrastructure caused by inadequate federal funding in the prior decade. Later that same year, a report by the General Accounting Office[8] documented a sharp rise in indirect costs associated with National Institutes of Health grants during the period 1972 to 1982. The report, which recommended establishing fixed allowances for indirect costs, caused debate within the research community and in Congress.

In hindsight, we can surmise that the rate increase over that period was in large part the natural result of eliminating the congressionally mandated caps, which existed prior to 1966, and the university community addressing research facilities shortcomings caused by the stagnant federal science investment in the 1970s. This is illustrative of the kind of inconsistency that has been a part of the federal government's dealing with universities. On the one hand we wrung our hands about the sorry state of research facilities, and on the other hand we were outraged with rising indirect cost rates that resulted in part from fixing the problem.

Why is it that the federal government seems unable to make up its mind on how to deal with universities? The PRD report attributes this in part to the lack of a clearly articulated statement of the principles of the partnership. The report called for the development of such principles to help clarify the roles, responsibilities, and expectations of each of the partners and to establish a framework for addressing future discussions, formulate policies, and help in decision making.

This is not a new idea. On two previous occasions, I have cited Dr. George Keyworth's 1984 testimony before the House Committee on Science and Technology. During that same testimony, Dr. Keyworth made the following comment: "Mr. Chairman, while there's been a de facto relationship between universities and the Federal government for more than 40 years, there's been no explicit recognition of the nature of this relationship nor of the responsibility of the Federal Government toward universities. " He proposed a study of the broad policy questions that affect the current and future health of our colleges and universities. Unfortunately, the study that followed became embroiled in the issue of how to control the growth of university indirect cost rates. I will leave it to the reader to determine the impact

on the community during the fifteen years that followed our failure to address the major policy questions. Consensus in the community seems to be that the PRD's draft principles, with some tweaking, would establish a good framework for the future. I agree, but the hard work cannot end with the publication of principles and accompanying recommendations.

The Complex Nature and Missions of the Partners

The principles, in and of themselves, will not solve all the difficult issues we face today or in the future. They will not dissuade members of Congress from making judgments about the enterprise based on the relative level of F&A rates, nor will they provide comfort to federal negotiators who perceive that the only good university F&A rate is a lower F&A rate. Further, how will the principles translate to the everyday decisions of program officers who are trying to maximize federal research investment with available program dollars? In order to deal with these and many more critical issues, we need to better understand, and accept, the nature of the partners in this enterprise.

The federal government is not a single entity. It is comprised of separate branches of government, separate departments and agencies with different missions and functions, and we are many individuals who are neither all motivated nor judged by the same criteria. Congress appropriates and legislates. Its members are asked to make many difficult choices with regard to the use of our tax dollars. In doing so, they react to their constituents' issues and concerns, whether real or perceived (and perception is often more damaging than reality). In the past, members of Congress have reacted to the perception that F&A rates are too high, that costs at universities are out of control, or that universities have overcharged the federal programs. The reactions have included calls for more data and studies, and proposals to control or cap costs, and in extreme cases have led to reductions in research budgets. Consider further the number of departments, agencies, and offices within the federal government that affect the partnership and how they might respond to congressional concerns. Dealing with their responses are often more difficult when the government components are those that rarely need to address the federal government-university research partnership.

On the other side of the partnership, science and education are held in high regard by the citizens of our country and by their elected officials. There is recognition that science and education have played vital roles in advancing technological progress, in achieving our current standard of living, in providing for the health of our citizens, and in maintaining the nation's security. Because we entrust science and education to our colleges and universities, we both hold them in high esteem and place on them higher expectations. We expect the university community to consistently act on behalf of good science and quality education. Criticism is raised when the perception is that the community is not focused, first and foremost, on these goals. Actions that bring criticism need not be wrongs or abuses; they need only be perceived as focused on other than being in the interest of science or education.

Frequently lumped in with the perceived ills are business practices aimed at keeping universities fiscally sound. For example, it is generally accepted that commercial firms dealing with the federal government have the right to fully recover their costs and make a fair profit. To not do so eventually leads to fiscal insolvency. Universities, on the other hand, despite cost sharing, are perceived as straying from the high ideals of science and education when similar fiscal concerns cause them to seek higher F&A rates.

Issues need not be confined to the area of federal sponsorship to arouse concern. Any area of controversy, again real or perceived, casts a shadow that can affect the federal government - university partnership. Given the propensity of the university community for open debate, controversy is not very hard to find. A good example is that faculty are often critical of their institutions' F&A rates. Similar debates take place in commercial enterprise, but they are internal and they focus on cost controls, pending investments and other issues that may impact the ability to compete. Given that the federal research support system is heavily weighted toward funding of individual ideas, we should understand that the F&A costs create tension between PIs and university business officials. This is a healthy tension and the federal establishment should welcome the debate that takes place between these parties.

There is a high likelihood that federal departments and agencies will endorse the guiding principles of the partnership through their participation in the NSTC. The PRD report also contains operating principles that are intended to assist agencies, universities, investigators, and auditing and regulatory bodies in implementing the guiding principles. One such operating principle is that agency cost sharing policies and practices must be transparent. Before the report was finalized, NSF issued guidelines on being explicit with cost sharing requirements. Many in the university community believe the NSF guidelines should be the model for all agencies. Would federal-wide adoption, however, bring an end to the more subtle

pressure to cost share that occurs during preaward discussions?

This is a much harder nut to crack. Principal investigators will seldom refuse an award or recommend that their institutions walk away from an award when advised by agency officials that the research proposed cannot be fully funded. I do not know how often research projects are down-scoped to compensate for funding limits. I think that more often some combination of cost avoidance and voluntary cost sharing occurs within the originally proposed scope. What I know for sure is that PIs will do what is necessary to meet a sponsor's performance expectations rather than risk losing future sponsorship. I worry that we on the federal side too often take this for granted without concern about the overall impact on the research enterprise.

Assessing the Impact of Changes - A Difficult Challenge

This brings me to the cost sharing issue most debated over the past year. The PRD-4 report calls for the NSTC to assess the impact of accounting practices on voluntary cost sharing by universities, particularly as it relates to the donation of faculty time to research projects. This issue has risen to more prominence within the past four years although thus far it has affected only a handful of universities; however, it potentially could touch a much larger segment of the community. At the affected universities, negotiated upward adjustments to the organized research modified total direct cost (MTDC) base resulted in some lowered F&A rates. It should be noted that in most cases the adjustments also included some consideration of mandatory cost sharing not fully accounted for in the MTDC base.

This issue most confounds the faculty whose intellectual contribution is at the very heart and soul of the federal government-university partnership. How do we research administrators explain to faculty that being dedicated to research can cause adverse financial impacts on one's university? How do we rationalize that time spent mentoring a graduate research assistant may be "organized research" with regard to effort reporting, while on the other hand, it may be education that should properly be allocated to the instruction base? Obviously, we cannot explain the rationale in terms that have meaning to the science enterprise. We also have great difficulty explaining the potential financial impact on the Federal science budget of clarifying the rules to indicate that voluntary faculty effort need not be included in the MTDC base.

> In the past, members of Congress have reacted to the perception that F&A rates are too high, that costs at universities are out of control, or that universities have overcharged the federal programs.

Consider all the factors that would affect an answer to the financial impact question and the level of confidence we could attribute to that answer. The list, which is likely less than fully inclusive, might include the following:

- The availability of reliable and verifiable data on adjustments made to the F&A rates as a result of a specific current practice related to voluntary cost sharing.
- The timing of successor negotiations at institutions where rates were adjusted given that multiyear predetermined rates were used.
- The impact of the A-21 provision requiring the use of fixed rates for the life of sponsored agreements.

We would be better advised to address the impact on the science program of not making a change. Would the practice by the federal negotiators and auditors of compensating for undocumented voluntary cost sharing through upward adjustments to the organized research base become more common? If it does, what will the impact be on voluntary faculty effort or on committed cost sharing? Little evidence has been offered indicating that mandatory cost sharing requirements have increased to any significant degree in recent years. There is evidence, however, that less cost sharing is being offered and that universities are moving to stricter criteria for offering or accepting cost sharing arrangements.

Earlier I mentioned the pent-up anxiety caused by the cap on the administrative components of F&A rates and other factors that limit reimbursement. In my opinion, issues of cost sharing would not have been raised so vociferously if the combined influences of reimbursement limits, increased compliance costs, and "expected"

voluntary cost sharing were not causing significant stress on the university community. We cannot engage in meaningful dialogue about cost sharing in isolation of these other influences, let alone broker solutions that promote good science and ensure a healthy research infrastructure.

Despite the difficulty, we must not ignore questions about the impact of proposed changes on university F&A rates and on the science budget. Conversely, we must also address questions about the potential impact of increases in the federal science budget on F&A rates. Some of the above listed factors, plus more, affect our ability to respond to such questions.

I worry that there is an expectation across a broad spectrum of federal officials that university F&A rates should be going down because generally accepted accounting logic says that increasing the science budget will create downward pressure on rates. The imperative, however, is to make it very clear that the policies instituted by the federal government over the last decade serve to retard the sensitivity of F&A rates to changes in the level of federal funding. Many of those asking these questions have responsibilities that influence the federal government-university partnership. It would be unwise to have them less than fully informed when they make critical decisions on agency programs, on science budgets, or on science policies that impact the health of the federal government-university research partnership.

Conclusion

Much ground has been covered since the pioneers of the federal government-university research partnership first carved out agreements for federal funding of university research. Today's robust enterprise may exceed their early expectations in terms of the volume and scope of research that it supports. It might also surprise the pioneers that cost sharing, in one form or another, continues to be debated within the partnership more than a half century later. Cost sharing is an integral component of the academic research culture; to conclude otherwise would be to ignore both the past and the present.

In order to ensure the continued effectiveness of the partnership, however, we must strive for a consensus, if not agreement, on our expectations for cost sharing. We must address cost sharing, as well as policies that limit the recovery of research costs, with concern for both the impact on research performance and the upward bounds on the federal science budgets. I hope my discussions on these topics have shed some light on the important questions we must deal with in searching for workable agreements on cost sharing issues.

Notes

The author notes that the opinions and assertions expressed in this article are the personal ones of the author and do not necessarily reflect the official views of the U.S. government, the Department of Defense, the Department of the Navy, or the Office of Naval Research.

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The Remainder of the Cost Sharing Policy Agenda

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Abstract

Recent policy initiatives by the National Science and Technology Council and the National Science Foundation are important responses to longstanding complaints by the academic research community about the dysfunctional, vague, costly, and arbitrary character of federal cost sharing policies and practices.

Even as, or if, these initiatives become widely implemented in agency and program manager policies and practices, at least two significant issues pertaining to cost sharing issues will remain. First, proposed revisions leave unresolved the issue of whether differential cost sharing requirements should be established in order to foster the competitive position of universities and states that traditionally receive small shares of federal R&D awards. Second, reduction in the frequency of specific agency practices may have limited impacts on aggregate institutional cost sharing outlays.

INTRODUCTION

The National Science and Technology Council (NSTC)'s Presidential Review Directive report, *Renewing the Federal Government – University Research Partnership for the 21st Century* (April 1999) and the National Science Foundation(NSF)'s revised policy statement on cost sharing are important responses to longstanding complaints by the academic research community about the dysfunctional, vague, costly, and arbitrary character of federal agency cost sharing policies and practices.[1] The NSTC report's recommendations on cost sharing relate to exploration of mechanisms by which federal agencies might more clearly and consistently communicate their policies, practices, and expectations to universities. They also call for an assessment of the impacts of federal government accounting standards on voluntary cost sharing by universities. Transformation of the NSTC statements of principle into revised agency policies and behaviors is in embryonic form, with impacts yet to be determined. Likewise, NSF's new policies are too new to be assessed.

This paper treats as open questions the implementation and impacts of the NSTC and NSF actions, and addresses instead aspects of the cost sharing issue agenda that are only tangentially touched upon or subsumed in the two documents. It draws on a national study of federal agency policies and practices regarding cost sharing and of related university experiences (Feller, 1997), to present, first, an analytical framework that brackets the scope of potential improvements produced by the NSTC and NSF statements, and, second, using these brackets, to highlight aspects of cost sharing that are not directly impacted by the revisions called for in these two statements. It suggests that cost sharing issues, albeit of a somewhat different coloration, are likely to continue to beset the federal government-research university relationship.

Establishment of an analytical framework has one other important value: it serves to shift the locus of,

or onus if one prefers, for cost sharing from the policies and practices of federal agencies to structural and behavioral aspects of universities, more precisely, to the interplay of competing institutions within a larger system of research universities. Future federal government–university cost sharing issues thus may center more on the interests of different cohorts of universities than on the discrete actions of federal agencies.

Cost Sharing and the Social Contract

Cost sharing is the disputed residual in the otherwise widely acclaimed exchange relationship between the federal government and universities. Permeating all accounts of the post-World War II pattern of federal support of academic research, and reaffirmed in the NSTC report, is the theme of mutually advantageous exchange—a social contract or partnership in science and technology—between the federal government and universities.

However, from the beginning, "one bone of contention" in this unique relationship according to Likins and Teich, has been whether the government should pay the full cost of research project(s) (Likins and Teich, 1994). "The issue," they write, "hinges largely on one's perspective on research as either an investment in the future, in which government is the essential funding agent and universities provide a service to the nation, or as a self-interested pursuit of the academic world for which government is providing a subsidy . . . . Our own view is closer to the former, and we would argue that, as a matter of principle, the federal government should pay the full cost of federally sponsored research at all of our universities" (ibid., p. 180).

In practice, the full-cost principle has seldom held across the span of federal agency support.[2] The financial terms of the social contract have varied over time. Recent debates about cost sharing are part of a forty-year-plus cycle with alternating patterns of tightness or looseness in arrangements between the federal government and universities as to who shall pay what share of the cost of federally sponsored academic research.[3]

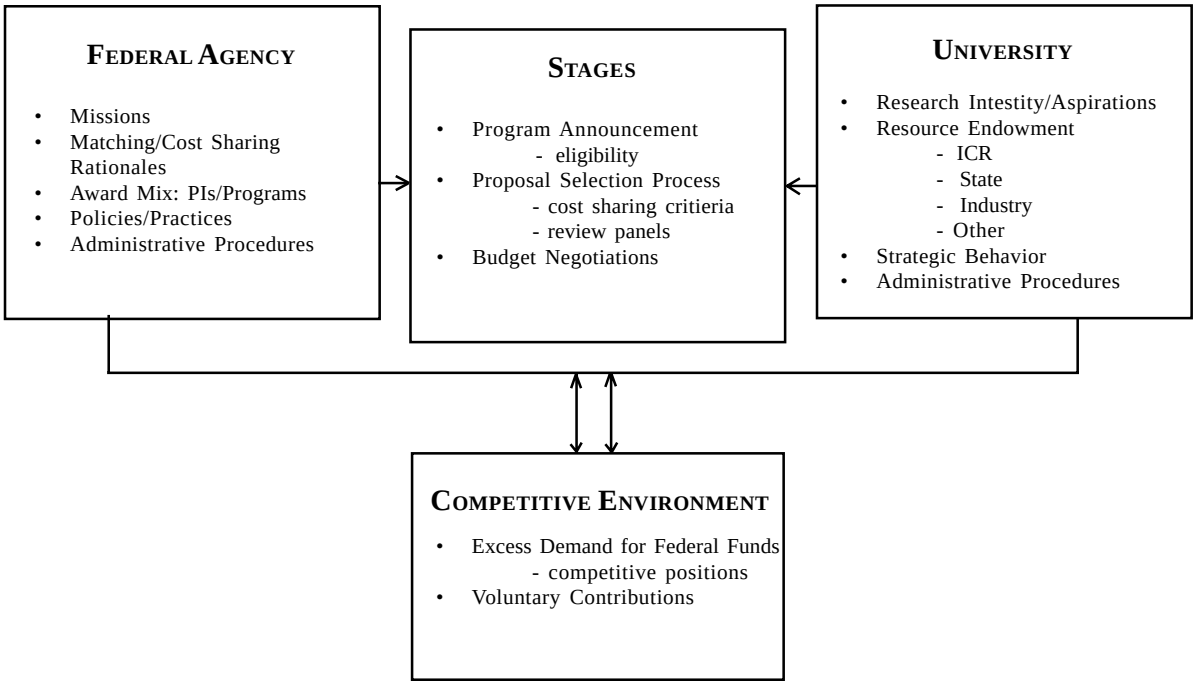
Analytical Framework

Issues relating to cost sharing arise from the interplay of the objectives and behaviors of federal agencies, the objectives and behaviors of universities, the stages of the research funding cycle, and the (increasing) competitiveness of research-intensive universities for external funds. Figure 1 outlines the interaction of these four factors. The elements of three of the four cells are briefly described below.[4]

Federal agency cost sharing requirements and practices can occur at any of three stages of the research funding cycle: (a) program announcements; (b) proposal review processes; and (c) pre-award budget negotiations. Federal agency requirements and practices represent an overlapping but

Matching Fund/Cost Sharing Process

Figure 1



diverse set of rationales for cost sharing at each stage.

In the context of the research funding cycle, the NSTC report attends to several of the academic research community's concerns. These include (a) imprecise character of the terms of cost sharing requirements; (b) the latitude that vague specification about cost sharing requirements (and amounts) offers to program managers to ratchet up cost sharing commitments by universities, and (c) financial double-bind in which institutions can find themselves as they report voluntary cost sharing only to discover that these contributions may be used to reduce their negotiated indirect cost rates. The NSTC report also raises the issue of the fair allocation of research costs but leaves the resolution of this issue to subsequent consultation with universities and other interested parties.

The NSF revised policy also addresses the university community's concern about the lack of specific criteria for determining the appropriateness of cost sharing provisions or expectations. Furthermore, in redressing one of the most vocal complaints of academic researchers and administrators, it reduces the sway of program managers at the pre-award budget negotiation stage. However, while it seeks to systematize, delimit, and make transparent its cost sharing procedures, the NSF policy statement also explicitly legitimizes cost sharing.[5]

Explicit rationales for cost sharing rather than reform of harmful and egregious policies and practices indeed may be the single major aspect of emerging federal policies. Even as they move to curb administrative excesses at the proposal selection or pre-award budget negotiation stages, federal agencies appear to be on the verge of forthright rejection (for some substantial portion of the programs and funds they provide for academic research) of the proposition that they are to pay the full cost of the research. In terms of the Likins–Teich framework sketched above, agencies are increasingly advancing their view that federally-funded academic research yield benefits to universities as well as to the public, and that, consequently, universities should bear part of the costs of the research.

The most frequently cited justification for cost sharing is to obtain a measure of institutional commitments.

Federal Agency Rationales for Cost Sharing

Allowing for differences in agency missions and modes of acquiring or supporting academic research, program and grant managers offer several shared rationales for the use of matching funds and cost sharing, plus several subsidiary benefits of these requirements.

The most frequently cited justification for cost sharing is to obtain a measure of institutional commitments. Cost sharing shows that the proposal is an institutional rather than a single- investigator activity. A related rationale for cost sharing requirements, typically expressed for instrument and facilities programs, is that these awards provide universities with facilities that might be used by multiple users other than those listed in the proposal. These facilities also tend to be long-lived and can be used beyond a stated project period. They also can be multipurpose, generating benefits to both research and instructional activities. In each case, the institution (as well as any specific researchers or research group) is seen as a beneficiary of the award, and as such is expected to pay a share of its costs.

Cost sharing also is held to have a "signaling" value. It signals university officials (as well as third-party sponsors of academic research, such as foundations) about the quality of proposals, programs, and institutions. It is a way to call university officials' attention to specific units or principal investigators, offering external guidance about the internal allocations of funds. A letter of award contingent on cost sharing constitutes an externally validated assessment of the best uses of an institution's resources.

Two additional, somewhat opposing rationales related to institutional priorities also are advanced by federal agency program managers to justify cost sharing. First, cost sharing is viewed as appropriate when the activity being supported is believed to be an integral part of the university's activities. Cost sharing requirements on educational programs, for example, are perceived as appropriate because the primary mission of the university is education; federal grants thus "enhance" or "top off" support of existing institutional activities. Second, cost sharing is a specific tactic to alter an institution's priorities and to initiate what an agency hopes will be sustained levels of institutional commitment beyond the life of the project. A broad and diverse range of programs are subject to this rationale: The objective might be to encourage the university to pursue certain educational objectives—diversity, interdisciplinarity, undergraduate

instruction, or research; it might be institutional in character, as in NSF's Experimental Program to Stimulate Competitive Research (EPSCoR), which among its multiple objectives, seeks to engender systematic change in state government–university relations, thereby inducing increased state support for the research capabilities of these universities. Finally, in the case of various university–industry–state government programs, cost sharing requirements are seen as an "icebreaker" that impels the institution and its faculty to seek collaborative relationships where few existed before (Sattler and Gwaltney, 1996).

The behaviors of federal agencies and universities related to cost sharing also are conditioned by the increased competition of universities for federal awards. This increase is the compound product of an increased number of universities with a research orientation and the increased research intensity of all universities juxtaposed against an implicit steady-state level of federal support for academic research. Several different markers point to this increase. Allowing for indistinct boundaries among types of higher education universities and colleges and some changes in underlying definitions, the number of research-intensive institutions has increased from about 30 immediately following World War II to between 175–200 today (Noll, 1998; President's Council of Advisors on Science and Technology, 1992). The number of institutions receiving federal academic R&D awards, likewise, has increased from 555 in 1975 to 882 in 1995 (National Science Board, 1998, pp. 5–14). This increased competition among academic sellers increases the relative bargaining position of government agencies, enabling them (through cost sharing) to obtain price discounts.

Drawing together the stages of the research funding cycle and the several rationales for cost sharing provides a framework for setting the boundaries of cost sharing provisions. They are appropriate as eligibility and proposal selection criteria for infrastructure and programmatic awards, but not for investigator-initiated, project-based proposals or as elements in pre-award negotiations other than as the consequence of bottom-line, reduced levels of project funding. The framework in fact is close to that recently adopted by NSF.

A pervasive belief exists in the academic community that financial contributions are necessary to do well in peer review . . . .

Cost Sharing as Viewed by Universities

A brief word on university responses. Universities accept as legitimate several of the above rationales for cost sharing. They generally agree that the investment or public good arguments underlying the social contract framework have only partial applicability to multipurpose research facilities that may be used for funded and unfunded research projects, for education programs, and for long-lived facilities that may be used by the institution and its faculty and students beyond the life of a funded research project. They acknowledge that each of these situations implies apportioning the public and private benefits and costs by some formulae between the federal government and universities. Also, in partial contrast to the full-cost principle noted above, the obligation for institutions to bear part of the cost of research funded by federal agencies is understood and accepted by segments of the academic research community. The Association of American Medical Colleges' report on financing medical schools, for example, notes as follows: "The award of federal funds for research in universities rests on the concept of the 'grant-in-aid'; and is to be distinguished from the concept of a procurement contract. The grant-in-aid presupposes that the awardee institution will contribute to the costs of the project...." (Association of American Medical Colleges, 1996, p. 33).

University concerns about matching and cost sharing relate to the increased use by federal agencies of research support mechanisms that presume partnership or distributed benefits; increases in the range of benefits universities are deemed to derive from federally funded research (which in turn becomes the basis for the increased frequency and magnitude of cost sharing); and de facto cost-shifting tactics under the guise of shared benefits.

A pervasive belief exists in the academic community that financial contributions are necessary to do well in peer review, site visits, or study groups, with agencies seen as giving manifest and tacit signals that institutional contributions are required even when formal announcements are silent or permissive. University administrators and faculty are concerned that programmatically meritorious projects may not be funded if insufficient matching has been identified. They also have reported on occasion having to shelve a proposal because adequate cost sharing could not be found.

Together, these experiences

and perceptions have raised concerns about the displacement of merit review criteria by ability-to-pay and willingness-to-pay, the increased financial cost of complying with cost sharing requirements and practices, and the idiosyncratic, demanding, and at times insistent pressures from federal program managers on universities to ante up a larger portion of project and center budgets, at times in evident contradiction of federal government and agency policies.

The Remaining Cost Sharing Agenda

Even if the above cost sharing principles enunciated by NSTC become widespread agency (and OMB) practice, eliminating some substantial portion of the concerns, complaints, and grievances of universities with respect to federal agency cost sharing policies and practices, several issues would still remain. Indeed, with the most fractious and vexatious issues ameliorated by adoption and implementation of the NSTC and NSF principles and policies, these remaining issues might move to the fore, becoming the new major irritants rather than, as now, subsidiary items in the larger portfolio of complaints.

Two such issues are briefly outlined here, neither of which is dealt with explicitly in the NSTC report. They are (a) cost sharing as a factor in competition among universities for federal academic R&D funds; and (b) the aggregate institutional costs of cost sharing.

Competition

Fueling concerns by university representatives and others about cost sharing has been its impacts—real, alleged, and potential—on the criteria by which federal research support is allocated. On at least two major occasions in recent years, losers in major competitions for NSF centers have claimed that state contributions of matching funds unduly diverted the award from the scientifically more meritorious proposal (Walsh, 1987).[7] Rather than single case competitions between two institutions, the cost sharing issue for the future is more apt to relate to its impacts on the institutional and geographic distribution of federal academic R&D awards.

Questions concerning the shape of the distribution of federal academic R&D funds are longstanding. They involve oft-stated, opposing positions concerning the need to have merit review determine the allocation of awards, with subsequent patterns of concentration by institution (or state) being subsidiary consequences, against charges of self-perpetuating networks of reviewers, the desirability of broad-based institutional (and geographic) access of students to research-oriented faculty, equipment, and programs, and, increasingly as universities have come to be seen as engines of regional economic growth, the search for means of apportioning the regional economic beneficence flowing from federally funded academic research projects. All of these are tinged by endemic congressional attention to distributive politics.

> Cost sharing provisions can affect the abilities of institutions (and states) to compete for federal grants and contracts.

Cost sharing provisions can affect the abilities of institutions (and states) to compete for federal grants and contracts.[8] Upwardly mobile and aspiring universities, especially those in low-income states, see cost sharing as dampening their abilities to compete for federal funds. Most of these institutions are public universities. They see the limited capacities of their state governments to provide cost sharing subventions, either directly through earmarked state appropriations or through selective, pass-through increases in university budgets, as placing them at a disadvantage relative to "established" public-research universities in high(er) income states and even more so relative to established private universities, with their large endowments. In effect, they view cost sharing as a regressive tax, falling most heavily on those institutions or states least able to afford the levy. (NSF's new cost sharing policy in effect recognizes this situation. It states that "Requirements for cost sharing may take into account the type of institution, institution size, level of other research support, population served, etc.")

"Have" states and institutions can be expected to oppose differential cost sharing provisions. Private elite universities have been among the most vocal in challenging recent federal agency cost sharing practices. These institutions typically are engaged in multiple major research programs that entail sizeable aggregate cost sharing expenditures. Private universities note that as public institutions, aspiring universities have access to supplemental state funds for cost sharing on federal grants, while they typically but not always must rely on their own internal financial resources. Differential cost sharing requirements also are seen as once again inserting criteria other than merit into proposal selection. Finally,

established universities are apt to note that the "democraticization" of federal academic R&D funds has already produced a broadbased distribution of research capabilities among an increased number of universities; the social value of further adding to this number is not self-evident (Feller, 1999).

Aggregate Institutional Costs

University opposition to federal government cost sharing policies and practices also is based on the high aggregate level of cost sharing. One factor contributing to the aggregate level of cost sharing is the decentralized, almost atomistic manner in which cost sharing requirements are imposed. The general setting across federal agencies, and programs within agencies is for each to set its cost sharing requirements and expectations without regard to those of others. Each single agency requirement may be legitimate in terms of the above rationales, but no single agency has the information or incentive to attend to the total cost upon universities, which can be harmful both to their research and educational activities.

The NSTC report provides a more holistic view of the impacts of cost sharing. The impact of its principles or even of NSF's new policies on the aggregate level of cost sharing is problematic, however. Rationalization of the criteria for the imposition of cost sharing, establishment of more explicit bands on the range of necessary or allowable cost sharing contributions (thus reducing the frequency of situations in which universities are led to ratchet up their cost sharing offers), and the elimination of end-game bargaining situations that enable program officers to shift project costs to the universities, should produce some reduction in cost sharing expenditures. (At least, it should lead to a reduction in cost sharing outlays relative to the level of federal R&D awards.)

The magnitude of this is an open question. Two factors suggest that it may not be large. First, an undetermined but possibly substantial portion of existing agency cost sharing requirements may be reasonably justifiable under the rationales presented above. Relatedly, any trends towards programmatic awards, especially on the part of NIH and NSF, the two primary agency sponsors of academic research towards programmatic research, can be expected to be accompanied by (legitimate) requirements for cost sharing.

Second, pressures for cost sharing by universities will continue to occur as faculty receive reduced levels of funding for their awards. Bottom-line budgeting, as called for in the NSF's new policies, may be a considerable improvement over practices in which program managers tactically delete specific budget items in the expectation that the university will pick up the difference or seek to influence principal investigators into obtaining new or additional levels of institutional support as a precondition, real or feigned, for an award. But budget reductions in principal investigator-initiated awards also are consistent with peer-based, merit-reviewed algorithms that relate percentages of budget requests actually funded to rank-ordering or priority scores. It also is consistent with program managers' and agency decisions to substitute reduced levels of funding per award for increased numbers of awards to achieve other agency (and research community) objectives, such as insuring adequate funding for younger researchers. The outcome of these (reasoned and reasonable) reductions still is that some numbers of faculty will find themselves with awards below requested funds, and as a result will seek support from their home institutions. Institutions that honor (some percentage) of these requests will be engaging in voluntary cost sharing. Their outlays will reflect their commitments and aspirations to faculty research and institutional standing as a research-intensive university.

> The NSTC report provides a more holistic view of the impacts of cost sharing.

Conclusion

Recent statements of principle by the NSTC and policy changes by NSF are important steps towards a more rational system of cost sharing provisions in federal agency awards to universities. The changes, if and when fully implemented, may prevent the dilution of the importance of scientific merit and mission relevance relative to financial offer as the basis for the awarding of federal grants and contracts. The changes can eliminate end-game proposal selection and proposal award negotiations, at times conducted by program managers in a manner inconsistent with stated agency policies that increase the cost of projects to universities. The projected result is some reduction in the total cost of cost sharing to universities.

But the above changes do not eliminate cost sharing requirements. Moreover, in light of the interpretation of the generation of public and private (that is, university) benefits contained in the two documents, they are not intended to. Further-

more, even when federal agencies adhere to "tight" strictures on matching and cost sharing, it is unlikely either that universities will stop making voluntary offers—the competition among institutions for research standing, especially for hallmark awards, appears to be intensifying rather than abating.

NOTES

[1] Cost sharing is used here as a generic term to cover both matching fund and cost sharing requirements and arrangements. A fuller account of federal agency usage of these terms is presented in Feller (op. cit.).

[2] As Brooks has observed, " . . . the fundamental issue of public policy for science is not the validity of a single comprehensive social contract for complete autonomy in exchange for promised social benefits, but rather one of identifying what proportion of the overall national science and technology effort should be subject to the social contract in order to optimize its net contribution to society" (Brooks, 1993, p. 208).

[3] Cost sharing issues are endemic to the post-World War II system of federal government support of academic research, and have been associated with frequent legislative and administrative changes (National Institutes of Health, 1991; Schneider, 1985; U.S. Department of Health and Human Services, 1992; U.S. GAO, 1992) (Likins and Teich, 1994).

The historic singularity upon which the traditional and contemporary depiction of the terms of the social contract has been described by Sapolsky as follows: "Major universities should consider it extremely fortunate that the Office of Naval Research (ONR) and not NSF initially held the patron role." ONR's defense orientation gave it the "political freedom to negotiate generous terms of support for universities" and to easily bypass traditional constraints on government support, such as "the need for grant recipients to share costs with the government" (Sapolsky, 1990. pp. 166–167).

[4] Accounts of university policies on cost sharing are described in Feller (op. cit.), also Zuiches and Vallely (1987).

[5] NSF's new cost sharing policy notes that in addition to statutory requirements on cost sharing: ". . . NSF can require cost sharing when we believe there is tangible benefit to the award recipient(s) (normally beyond the immediate term or scope of the NSF-supported activity)." Cited as examples of these extra-project benefits are capacity-building, potential dollar revenues, time frames, third-party benefits, awards for infrastructure-building purposes, or for "awards where there is clear potential to make profit or generate income (e.g., curriculum development)."

[6] The Federal Coordinating Council for Science, Engineering, and Technology (FCCSET) has characterized federal agency matching fund and cost sharing policies and practices as follows:

> The connections between the Federal agencies and the RIUs (research-intensive universities) are complex, varying in response to distinct missions, objectives and processes among different agencies and even subunits within them . . . . Agencies use a variety of mechanisms to support research at universities, including grants, contracts, and cooperative agreements. The specific mechanism used is determined by agency requirements and objectives, rather than whether the research is fundamental or applied . . . . A "procurement" relationship between the Federal government and universities is the consequence of the imposition of specific requirements on the conduct and outcomes of research. In contrast, government support for a range of activities to expand the knowledge base of science, engineering, and technology and to strengthen the research and education constitutes an "investment" (*In the National Interest*, 1992, p. 5).

This characterization is a useful first approximation, for example, of differences in cost sharing policies and practices between DoD and NASA on the one hand, and NIH and NSF, on the other; USDA, with its system of formula funding of academic research at land-grant universities and competitive research grants open to researchers at all universities, occupies a separate niche. Differences in agency missions that correspond to procurement and investment objectives lead to differences in relative use of grant and contract funding mechanisms, differing degrees of use of requests for proposals (RFPs) and invitations for investigator-initiated proposals about broad scientific or technological disciplines, and, in turn, to different philosophies and practices relating to matching and cost sharing.

[7] Cost sharing also affects the competitive standing of otherwise seemingly peer institutions. For example, in a competition for NSF equipment funds, Yale University's chemistry department provided $1.3 million in matching funds to a $480,000 NSF grant to acquire a high-field nuclear magnetic resonance spectrometer for polymer catalysis and biological studies (*Chemical & Engineering News*, October 31, 1994, p. 15). Noting this 2.5 to 1 match, an official at another Ivy League institution described his institution as struggling to increase its cost sharing from 30 percent to 50 percent of the requested amount. His institution has no effective response to faculty who seek to remain nationally competitive as scientists and thus expect their university to supply them with the equipment available to researchers at peer institutions.

[8] Claims that the rich are getting richer in the distribution of federal academic R&D awards are frequent (Greenburg, 1996). Contrary to this notion, federally funded academic R&D expenditures in fact have become more dispersed by institution since the 1960s, and are certainly far less concentrated than in the pre-World War II period (Feller, 1998; Geiger and Feller, 1995; Kleinman, 1995). However, they do remain concentrated in a relatively small number of institutions and a relatively small number of states. In FY1997, for example, the top five recipient states (California, New York, Maryland, Massachusetts, and Texas) received 41.6 percent of federally funded academic R&D, while the ten states receiving the smallest shares received 2 percent, and the 20 states at the lower end of the distribution received 8 percent of this total.

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Cost Sharing and Effort Reporting: Breaking the Juggernaut

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Abstract

This article advances the controversial idea that adding a "factor" for voluntary cost sharing in the F&A rate base and rationalizing the assignment of space to functions could lay to rest one of the thorniest costing issues facing rate negotiators. In addition, it could provide badly needed relief from record-keeping burdens and avoid the need for costly administrative systems to maintain information on voluntary cost sharing. It also proposes a methodology for arriving at what such a reasonable factor would be.

Introduction

The University-Government relationship, while highly effective on many fronts, continues to be troubled by contentiousness surrounding a range of costing issues and documentation requirements, notably cost sharing, and particularly contributed effort. This article proposes a way to simplify the documentation and accounting associated with contributed effort. Since it is understood that the government would not accept a change that has the effect of shifting costs in any major way, the authors relied on the Council on Governmental Relations (COGR) FY98 F&A rate database for simulations to assess possible impact.

Central to this proposition is the fact that most federal funding to universities (with several large and notable exceptions) takes the form of financial assistance, and not procurement. The financial assistance model assumes that the recipient can be expected to bear a portion of the total cost of a given project. Recipient-borne costs take the form of project-specific cost sharing (mandatory), statutory cost sharing (currently required only by NSF), voluntary cost sharing, assuming project costs that have been defined as unallowable direct charges, and applying an F&A rate that is lower than could be justified in a full costing model. For financial assistance purposes, the exacting calculations to establish rates should give way to calculations that demonstrate that the rates are reasonable, and that institutional cost sharing is treated equitably.

F&A Rate Calculations

OMB Circular A-21, "Cost Principles for Educational Institutions" prescribes how F&A rates are to be calculated, and Circular A-110 "Uniform Administrative Requirements for Grants and Other Agreements with Institutions of Higher Education, Hospitals and Other Non-Profit Organizations," describes administrative requirements, including documentation requirements, for the expenditure of federal funds.

In its simplest terms, the F&A rate is the facilities and administrative costs of conducting certain types of projects (e.g., research), divided by the direct costs of the projects (less certain things, like equipment and subawards). Friction between universities and government F&A rate negotiators arises at several key points in the rate calculation, including:

1) Does the Organized Research base accurately reflect research costs, including institutional cost sharing?
2) Is the apportionment of facilities costs, such as utilities, building and equipment depreciation/use allowance, O&M costs, etc., to the various university

functions consistent with how the base is constructed?

This article addresses both of these issues, and proposes ways to construct F&A rates that reduce administrative burden on universities and F&A rate negotiating agencies while still providing reasonable approximations of F&A costs.

Cost Sharing in the F&A Rate Base

The interest of the federal funding agencies in cost sharing is three-fold:

- In making funding decisions, ascertain whether the PI (and any Co-PIs) has sufficient capacity, given compensated and uncompensated commitments to other projects, to successfully undertake the project.
- Verify that formally committed cost sharing that figures in the funding decision is actually delivered.
- Verify that the Organized Research base includes institutional contributions to projects, as well as sponsored funding.

There is little disagreement that these objectives must be met. What is controversial is the degree to which universities are responsible for documenting and accounting for cost sharing. Neither A-21 nor A-110 provides sufficiently explicit guidance. In the absence of such guidance, the audit community has applied a number of different standards for cost sharing accounting and documentation, going so far in some instances as to demand documentation of unquantified narrative descriptions of institutional contributions found in proposal text. In the F&A rate negotiation context, some negotiators have insisted that uncompensated workers, such as fellows, visitors, etc., working in research labs should reduce the extent to which that space is allocated to Organized Research. Instead of welcoming the non-paid contributions of such people, some auditors use them as a reason to reduce F&A rates.

Program officers at funding agencies have clearly stated that their interest in looking at percentages of faculty effort is limited to obtaining an overall sense of the PI and Co-PI's capacity to do the project they propose in light of commitments to other projects. They make no use of after-the-fact reports of either compensated or uncompensated effort, and in fact have never had access to such reports. Instead, they properly rely on technical progress reports, reprints, citations, and other indicators of scientific merit in making future awards. Detailed effort reporting thus exists only to satisfy accounting and audit requirements. This proposal suggests how these requirements could be met without the disproportionate investment of universities in developing and maintaining complicated effort reporting systems.

There have been numerous efforts to bring clarity to this issue. The National Science Foundation policy on cost sharing (Important Notice #124) is the best example of a clearly articulated policy on when to require cost sharing and how to use it in the funding decision (i.e., as an eligibility criterion and not a review criterion). It does not address the secondary questions of how unsolicited, voluntary cost sharing is to be accounted for or documented.

The Federal Demonstration Partnership General Terms and Conditions are currently being revised to limit the requirement for documenting cost sharing to that included in the award document. Because the FDP terms and conditions deal with award management issues, they don't stipulate how the agencies should translate proposed cost sharing, either voluntary or mandatory, in their awards.

But taken together, the NSF policy and the FDP terms and conditions could provide key elements of a model for how cost sharing should be accounted for and documented.

1) Cost sharing requirements (other than statutory) should be limited to establishing eligibility to compete for an award under a given funding program. Cost sharing is appropriate when it is essential to establish that the recipient institution has the capacity and commitment to sustain the program, especially facilities-intensive programs.
2) Where no formal cost sharing requirement exists, universities that wish to communicate in a proposal their institutional capacity and commitment to doing the proposed work should be able to do so without having to subsequently formally account for their contributions.
3) Detailed cost sharing documentation should be limited to that cost sharing committed as a stated eligibility requirement for a funding program, and any statutory cost sharing (currently only NSF has a statutory requirement).
4) Mandatory cost sharing should be captured in the financial accounting system whenever possible. Those financial accounting systems that cannot readily keep track of contributed effort and other cost sharing would have to be augmented with subsidiary systems.

If these recommendations were incorporated into the OMB

Circulars and enacted by the federal funding agencies, the extensive systems established to confirm and account for voluntary cost sharing could be eliminated or replaced with something much less extensive that keeps track of only mandatory and statutory cost sharing.

If this were to happen, the F&A rate negotiators might erroneously conclude that without voluntary cost sharing, the Organized Research base would shrink, and that therefore the F&A rate would inevitably increase. (See Figure 1.)

When the contributed FTEs or salaries are classified as Organized Research, the base is larger, but so is the portion of facilities costs associated with Organized Research. If the FTEs or salaries are classified as Departmental Research, the Organized Research base is smaller, but so is the amount of facilities costs in the Organized Research pool.

Some institutions conduct a room-by-room space analysis that results in a higher percentage of space classified as Organized Research than is the case for either salaries or FTEs. This practice has been called into question by F&A rate auditors and negotiators, and part of the pressure to add cost sharing to the Organized Research base is connected to concern about this mismatch.

The University of Illinois at Urbana-Champaign has a space categorization methodology that first categorizes space in each departmental unit according to standard space reporting categories[3] (e.g., office, laboratory, support facility, etc.), then distributes the square footage associated with use of the various kinds of spaces to functions according to department-wide FTEs. A copy of this methodology is available by request to the University of Illinois (Urbana) Grants and Contracts Office.

(Note that for those institutions whose administrative rate is not above the cap, the Departmental Administration pool is similar to the facilities pools in that it is also increases when the salaries counted as Organized Research increase.)

To be acceptable to funding agencies, cost sharing accounting (for F&A rate calculation purposes) should include the mandatory and statutory cost sharing described above, plus some reasonable amount of voluntary cost sharing. But what is "reasonable" in this context?

Based on University of Illinois at Urbana-Champaign data, 5% of the MTDC of federally funded financial assistance research projects[4] would be a reasonable adjustment. It happens to equate to 5% of the average PI salary and benefits[5]. In the F&A rate calculation, the aggregate Organized Research base would be increased by 5% of federal financial assistance projects, and the Instruction/Departmental Research base decreased accordingly. The corresponding adjustment to the facilities and departmental administration pools would be to move 5% of an FTE (or 5% of the average faculty salary and benefits) for each financial assistance research project that is not subject to mandatory cost sharing and that expended at least some specified amount (UI used $40,000 MTDC in its calculation). This could be done in the aggregate, or on a department-by-department basis. It would eliminate effort reporting altogether, provided that direct effort on projects and effort associated with mandatory cost sharing is captured in the financial accounting system as Organized Research. With this adjustment for

Figure 1

Here is why an F&A rate increase is not inevitable:

If one assumes that the Administration pools are capped (as they are for nearly 2/3rds of the institutions in the COGR 1998 F&A database[1]), then only the facilities portion of the rate is subject to increase if the base decreases.

Circular A-21 specifies that facilities costs be distributed according to:

- the employee full-time equivalents (FTEs) or salaries and wages of those individual functions benefiting from the use of that space; or
- institution-wide employee FTEs or salaries and wages applicable to the benefiting major functions of the institution[2].

When the contributed FTEs or salaries are classified as Organized Research, the base is larger, but so is the portion of facilities costs associated with Organized Research. If the FTEs or salaries are classified as Departmental Research, the Organized Research base is smaller, but so is the amount of facilities costs in the Organized Research pool.

voluntary cost sharing, there should no longer be a separate documentation requirement for statutory cost sharing.

It is probable that actual PI effort on the project is greater than 5%, and a full accounting of all voluntary cost sharing would yield a larger base (but not necessarily a lower rate). But including 5% is a reasonable balance between showing only mandatory and statutory cost sharing, and keeping in place all of the systems necessary to capture and quantify information about voluntary cost sharing.

If further justification is needed, recall that some of the effort contributed to research projects is associated with educating graduate assistants, and properly remains in the Instruction base.

OMB Circular A-21 J.8.b.(1)(c) states:

> In the use of any methods for apportioning salaries, it is recognized that, in an academic setting, teaching, research, service, and administration are often inextricably intermingled. A precise assessment of factors that contribute to costs is not always feasible, nor is it expected. Reliance, therefore, is placed on estimates in which a degree of tolerance is appropriate.

After-the-Fact Confirmation of Effort

In order to confirm that directly charged effort, mandatory cost sharing, and voluntary contributed effort have been provided, PIs will be asked to sign at least twice annually one or both of the following certifications:

> The direct charges to project(s) and mandatory cost sharing associated with project(s) are allowable, directly benefit the project(s), and are reasonable in relation to work performed in that they meet or exceed the effort indicated in the approved budget.

For projects without direct charges or mandatory cost sharing of effort, the certification would read:

> The amount of effort contributed to this project was at least 5%. If the PI cannot make this certification because of other commitments, s/he certifies as follows: Involvement with this project was sufficient to achieve stated project objectives.

Conclusions

These changes would have the following effects:

- substantially simplify cost accounting related to F&A rate establishment,
- reduce universities' liability for producing documentation related to voluntary contributions to federal assistance programs,
- articulate both university and government participation in financial assistance programs, and
- reduce university dependence on consultants for F&A rate establishment and systems development.

Notes

This article is based on the University of Illinois' response to the Presidential Review Directive on the Government-University Partnership, which was developed by the authors. The full response proposes additional ways to streamline accounting and administrative functions at universities, without a major shift of costs in the direction of either the federal government or the university community.

[1] 83 of the 128 institutions in the COGR database have Administration rates of 26 points.

[2] The University of Illinois takes a middle ground in its distribution of space-related costs. UI does not go room-by-room and attempt to associate individuals with rooms, but rather uses department-wide space and FTEs.

[3] *Post Secondary Education Facilities Inventory and Classification Manual*, U. S. Department of Education, National Center for Educational Statistics.

[4] Excluding NSF cooperative agreements, which almost universally have project-specific cost-sharing requirements that would be considered "mandatory" cost sharing.

[5] To make this comparison, UI counted the number of separately budgeted financial assistance projects (excluding NSF cooperative agreements) where MTDC expenditures were greater than $40,000, and calculated 5% of PI salary plus fringe for each project. This amount came out to be 5% of MTDC.

Cost Sharing: A Time to be Traditional or a Time for Change?

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Abstract

The author presents a plan to determine if a cyclical, systems-based analysis can replace detailed activity reporting for voluntary faculty effort (cost sharing, community service, education, or any other category). This analysis could then provide the basis to determine if adjusting entries are required on billed contract costs (e.g., claimed F&A rates). This method would provide for quantitative support to the analysis of voluntary cost sharing's relevance to the calculation of facilities and administrative cost rates.

Introduction

As a young auditor I was once described by a local, friendly contractor official with the expression, "hide-bound." At the time I didn't really know what it meant, but could sense it was not complimentary. When I returned to the office and discussed it with my mentor (a supervisor with a lot of experience at receiving such "compliments"), he suggested that what the person probably meant to say was that I was a bit too traditional in my approach, and that I might not be open-minded about alternative approaches or change.

Webster's does not define "hide-bound" (thank goodness). Today, I more or less know the meaning of the expression, and I also know it is not intended to make the recipient feel good. Webster's does define the word – traditional. Some of the Webster synonyms include customary, habitual, sanctioned, doctrinal, rooted, and prescribed. Certainly, not as negative as "hide-bound," but who really likes to be called doctrinal or rooted.

Webster's also defines the word – change. Some of the synonyms include remodeling, innovation, alteration, aberration, vacillation, transition, tampering, evolution, and revolution. This is only a partial list, but it brings home the point in the expression – "sometimes change is good and sometimes change is not so good." "Innovation" is what every contemporary service-oriented organization seeks, while "tampering" connotes something legalistically incorrect. So – is it a time to be traditional (doctrinal) or is it a time to change (and is the change "innovation" or "tampering")?

There is presently a lively debate on the merits of cost sharing at America's best research institutions. Underlying the debate is the agreed-upon objective and understanding that all parties want American research to continue preeminent in the world and that the federal government when it funds research needs to receive fair and reasonable value. As a result of limited funds and a willingness by all to streamline and improve business processes, considerable attention has focused on how the government can receive best value for its research funds while minimizing administrative burden and record keeping. Said in an accountant's mentality – how can we verify that quality research was provided, and that facilities and administrative (F&A) cost (also referred to as indirect costs or overhead) burdens are not needlessly increased? Within that debate is also an ethical question for the government - does achieving one objective (F&A cost reduction) justify a policy position

to simply negotiate lower contract costs without a valid analytical basis or F&A submission, but with a reduction in the administrative efforts of audit and related cost analysis.

This article is one auditor's view that there has to be a better approach than that currently employed, but this approach needs to fully consider both the academic institutions' costs and risks, as well as the government's costs and risks.

The Short Version of the Cost Sharing Issue

From the Defense Contract Audit Agency's (DCAA) perspective, cost sharing practices, when based on uncompensated and unrecorded faculty timekeeping, have at times resulted in significant and unintended F&A cost over billings on government research contracts and grants. Simply stated, if a disproportionate amount of a faculty member's "voluntary" effort is spent on government research, then the applicable F&A cost allocation base is understated, and excess F&A costs are being allocated to directly funded government research projects. The DCAA position has been that proper cost accounting requires full cost absorption, and that you cannot have full cost absorption if all significant costs (that form the basis for cost allocation) are not properly included in the cost allocation base. This is also required by OMB Circular A-21, J-8(b)(1)(b) and (b)(2)(a).

It is also important to note that in today's university audit environment, this is the highest risk concern for Department of Defense (DOD) auditors. Institutions have demonstrated strong internal control systems that assure that unallowable costs are excluded from government billings. This previously was an issue. Recent audit history reflects a favorable light in this area on university cost administrators. However, DCAA analysis shows that when institutions record and distribute faculty salaries based on "availability of direct funding" (versus actual activity), the result often increases costs on existing government contracts.

The DCAA position has been that proper cost accounting requires full cost absorption....

The Response to Procurement Policy Requirements

Academic researchers did not invent the "traditional" responses that occur when cash flow is impacted by government procurement policy and related audits. American industry deserves this recognition. There are several standard responses often given by industry when noncompliance with procurement policy occurs, regardless of documented risk, impact on government contracts, or previously promulgated and accepted accounting criteria. These responses include the following.

First, an organization often appears to drape itself with the American flag and the mission interests of its customers. They state that no organization is a federal supplier unless that effort is undertaken first and foremost in the spirit of patriotism. They continue that everyone knows you cannot make reasonable and competitive profits as a government supplier - therefore, no organization is in the "government business" unless the absolute interests of the country prevail.

Second, government procurement policies and processes are administratively overpowering and constantly in need of reinvention. Further, they feel that government employees are largely risk-averse. I have heard at least ten times in my career from podium speakers that they are also tired of government employees who "hide behind a stated responsibility to the taxpayer."

Next, they state that highly educated, professional employees (as opposed to manufacturing employees who must somehow be in a different category of contribution to the federal government) resent anyone (especially an auditor) who asks them either how they charged their time for the period worked or, worse yet, raises questions about the accuracy of their time-charging practices. "White collar is white collar," is often viewed as sufficient response to government auditors and contract officials when discussing timekeeping issues. The point often made is that these employees are dedicated to the work they perform, and that administrative timekeeping requirements are neither understood nor welcomed. Such requirements by the government can only lead to reduced productivity and morale.

The Institutional Solution

Under the auspices of the Federal Demonstration Partnership (FDP), academic institutions have

suggested that starting on July 1, 2000, ten institutions enter a two-year effort reporting test program. This test program would include all faculty activity that is not part of a negotiated federal contract. Each project could include a "role statement" by the Principal Investigator (PI) explaining the research objectives and the intended outcomes. There will be no timekeeping requirements and no allocation of F&A costs to voluntary faculty activity. There will be a statement of assurance by the PI that the level of effort performed was consistent with the understanding of the research scope at the project outset. The government will agree that there is no regulatory or legal recourse for any subsequent labor cost adjustments, and the sole basis for judging completion and project success will be qualitative. Said in a "commercial-like" manner, if the government is not pleased with the research outcome, then they do not have to award the institution or the PI any future research effort. If at the end of two years all parties consider the test program successful, then this "new" process will be institutionalized throughout the federal academic research environment.

The Million Dollar Question

Will this two-year test provide a documented basis for future research funding and program stability, and will it demonstrate equity to all parties (sufficient to satisfy any external evaluator)?

It is my premise that while this project has been advocated and led by institutions who are proven suppliers of world-class academic research, the test project will not provide any new ground to address the unique requirement for, and balance between, effective and efficient internal controls and program management. It has already been established that absent some reliable form of periodic faculty activity reporting, allocated F&A costs on government contracts and grants often increase. For me, the desired step and question should be - can the current system be streamlined and changed to minimize institutional effort, while assuring that F&A costs charged on government contracts are proper? Rather, the proposed project will automatically default to a final solution that could be loosely and maybe cynically described as - let us do away with activity reporting and replace it with an after-the-fact letter of positive assurance, and then let us tell the government to fund current and future academic research solely on qualitative measures developed by the sponsoring agency. If that outcome is really the government's intended policy, then the proposed project has merit. However, if government officials want to be able to demonstrate on both a qualitative and quantitative (measurable) basis that taxpayer funding (there's that word again) is properly managed, I do not believe the proposed project, as outlined, is a good approach.

> "Can the current system be streamlined and changed to minimize institutional effort, while assuring that F&A costs charged on government contracts are proper?"

An Alternative Suggestion

At the December 1, 1999, national conference on cost sharing held in San Francisco, California, I presented the three existing options as I saw them, and then outlined why each option is largely unacceptable to either the federal government or the institutions supporting cost sharing. Some of the reasons for organizational concern could be expanded or clarified, but the bottom-line (I believe) remains unchanged. A working consensus cannot be reached on the options existing today. They are:

1. Fund the voluntary research and do not account for it.
2. Fund the voluntary research and fully account for it using current processes.
3. Do not fund voluntary research - terminate contract research at budget completion.

The slides I used in December are provided in Figures 1 and 2.

At the conference on cost sharing, I went on to outline what I referred to as "The Real Issue."

No organization (institutional or federal) has done the analysis to "demonstrate the equity of the current voluntary faculty labor practices and/or proposed improvements to the academic research procurement process."

Considerable qualitative arguments have been presented by

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Assessment of Three Options

1. Option One - Do Not Account for Voluntary Research

➔ Not Acceptable to Customer (Potential Adverse Customer Funding Implications)

➔ Inadequate Cost Accounting Practices and Assignment of Costs (Likely Result is DCAA Reports to Customer)

Figure 1

institutions about the adverse impact of government accounting requirements. However, to date institutions have not demonstrated the impact of these arguments. There has, however, been limited quantitative work performed by DCAA at selected institutions that did show noncompliance with current contract/grant accounting requirements.

Proposal - Establish a Federally Sponsored IPT (Integrated Program Team) to Analyze Voluntary Faculty Effort

What if several institutions were to team with their federal sponsors (using professional facilitators), and set out to analyze and demonstrate the overall impact of all voluntary faculty effort? And what if that evaluation showed that voluntary faculty effort was comparable among teaching, community service, and federal research? Then, might there be a documented basis to establish that effort reporting for voluntary faculty effort (cost sharing or any other voluntary effort) is unnecessary and should not be required? My point is that there is a possibility that from a materiality perspective, it could be documented this debate is "much ado about nothing."

My interest has also centered on the question - what if the proportionate time spent on voluntary faculty effort could be documented periodically (e.g., every three to five years) through a study (institution and government team members)? The study results could then be used to either document that there is no need for faculty voluntary effort adjustments or provide the basis for a negotiated factor that adjusts the allocated costs.

How Might This Work?

If an institution's auditors (internal and/or external) teamed with federal auditors every three or five years, they could sample and interview faculty on all work performed. They could categorize this effort (e.g., teaching, research, community service, etc.). They could then compare the total effort with the recorded effort. If reasonably comparable, the task is done until the next study cycle and no adjustments are appropriate. If the relationship between total faculty effort and funded effort is different, a factor can be calculated to adjust claimed costs consistent with the study results. This factor could conceivably increase F&A costs claimed and recovered on government contracts, or decrease such F&A costs.

What Are the Benefits?

The long debate about effort reporting for voluntary faculty research can be ended - there will be no need for detailed activity reporting regardless of the outcome, but there will be a basis (other than just qualitative) to calculate cost impact.

The government and the institution can demonstrate equity (especially to congressional funding sources) for the distribution of F&A costs among instruction, research, and other funding objectives.

Oversight of this area can be based on a cyclical, systems-wide

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Assessment of Three Options

2. Option Two - Full Accounting for Voluntary Research
   - ➔ Not Acceptable to Institution
     - Burdensome Accounting
     - Potential Disincentive to Researcher
     - Potentially Not Fair (Equity Issue)
3. Option Three - Terminate Cost Sharing Research at Budget Completion
   - ➔ Not Acceptable to Customer or Institution

Figure 2

basis, versus a period-by-period activity basis.

Trust without quantitative cost verification (the institutional proposal) will be replaced by proper cost accounting based on a streamlined (cyclical) cost analysis.

What Are the Negatives?

Some institutions simply do not want to perform any analysis to demonstrate equity. They apparently are willing to "continue to negotiate" downward only contract adjustments.

Some federal contracts officials also want to continue to negotiate F&A rates without any basis other than reducing institution-claimed rates based on an unsupported negotiation. Federal procurement policy (unless there are specifically identified cost ceilings or unallowable costs) is, however, premised on full cost recovery consistent with existing regulations.

Summary

The title of this paper raised the question - do you stay with tradition or is it a time for change? Clearly, "tradition" as defined by performing transaction-based, full-scope audits without first knowing the basis of risk to the government or the institution, does not make sense. However, "change" as defined by eliminating activity reporting for a portion of faculty research (cost sharing), without first knowing the impact (or potential risk) on government funded research, is equally questionable.

It is my belief that the government and the institution should be able to work together and perform a cyclical, systems-based analysis that can replace detailed activity reporting for voluntary faculty effort (cost sharing, community service, education, or any other category). That analysis can then provide the basis to document if adjusting entries are required on billed contract costs (e.g., claimed F&A rates). When I presented this position in December 1999 at the cost sharing conference in San Francisco, I was outnumbered both in count and, therefore, views by academic representatives. I realize the popular position was the position presented above as The Institutional Solution. However, that change is presently without a basis for quantitative support, and the two-year test being advocated will only provide qualitative inputs and not quantitative inputs. I believe that government and university officials should require both to effectively fund, manage, and report on federally sponsored academic research.

AUTHORS

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