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ABSTRACT

The federal government is the primary source of funds for social research in the United States, and academic institutions are the primary focus of social research performed with federal funds. Five distinct purposes underlying federal support of academic social research and five associated funding patterns are hypothesized. Actual patterns are observed in data from 1,079 faculty members in the disciplines of anthropology, economics, political science, and psychology. Results indicate that federal allocations are consistent with patterns expected if the government's purpose is (1) acquisition of policy relevant research and (2) advancement of basic social science. Observed patterns are not consistent with patterns expected if the purpose is (3) enhancing state legitimacy, (4) reproducing societal social relations, and (5) legitimizing the conduct of academic inquiry for the government. The impact of federal funding on the social science disciplines is examined in three areas. Significant influence is found in two of these -- research priorities and views of government discipline relations -- however, no observable impact is found in the discipline's social organization in the realm of academic promotion. It is concluded that a central government purpose in funding academic social research is production of research needed by government agencies and that this objective significantly shapes social science paradigms in the United States. (Author)

Final Report

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THE CREATION AND IMPACT OF LINKAGES BETWEEN THE SOCIAL SCIENCES AND THE FEDERAL GOVERNMENT

February, 1975

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education/National Institute of Education
National Center for Educational Research and Development

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The federal government is the primary source of funds for social research in the United States, and academic institutions are the primary locus of social research performed with federal funds. Five distinct purposes underlying federal support of academic social research and five associated funding patterns are hypothesized. Actual patterns are observed in data from a probability sample of 1,079 faculty members in the disciplines of anthropology, economics, political science, and psychology. It is found that federal allocations are consistent with patterns expected if the government's purpose is (1) acquisition of policy relevant research and (2) advance of basic social science. Observed patterns are not consistent with patterns expected if the purpose is (3) enhancing state legitimacy, (4) reproducing societal social relations, and (5) legitimizing the conduct of academic inquiry for the government. The impact of federal funding on the social science disciplines is examined in three areas, and significant influence is found on (1) research priorities and (2) views of government-discipline relations. No observable impact is found on the discipline's social organization in the realm of academic promotion. It is concluded that a central government purpose in funding academic social research is production of research needed by government agencies and that this objective is significantly shaping social science paradigms in the United States.

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education/National Institute of Education
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PREFACE

A number of people contributed in varying ways to the completion of this project. I would like to express my great appreciation to the following for their valuable assistance: Pierce Barker, Alan E. Bayer, Pamela Bulloch, Elizabeth E. Burnham, David Eaglesfield, Bruce K. Eckland, Steve Fjellman, Harriet Gluckman, Peter A. Gourevitch, Howard Hjelm, George C. Homans, Priscilla John, Jerome Karabel, Everett C. Ladd, Jr., Seymour Martin Lipset, Gary T. Marx, Richard C. McCann, Norma Panico, Lynn Pease, Monte Penny, Celia Perry, Margaret Polinsky, Lee Rainwater, Michael Ross, Ellen Rothman, Jeannie T. Royer, Zick Rubin, Johnnie M. Scott, Michael Seymour, Albert Storm, Irene Taviss, Bert Useem, Elizabeth L. Useem, John Useem, Ruth H. Useem, John Williamson, and Richard Wilsnack. I would also like to thank the Office of Research of the American Council on Education and the Social Science Data Center of the University of Connecticut for providing two data sets, and the Survey Research Program of the University of Massachusetts at Boston for assistance in data coding. The formulation of the original research design greatly benefitted from discussions with participants in the research workshop, "Sociological Theory and Research in Education," sponsored by the Committee on Basic Research in Education of the National Research Council. In addition to the basic research grant from the U.S. Office of Education, this research was also made possible by grants from the Milton Fund and Department of Sociology, Harvard University, and a grant from the Spencer Foundation through the Graduate School of Education, Harvard University. Finally, I am most grateful to the many social

scientists who responded to the request for an interview or completion of a questionnaire.

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Section I

SOCIAL SCIENCE AND THE STATE

One of the most rapidly growing institutions in American life since the Second World War is the political system. Local, state, and national governmental agencies are increasingly involved in determining the shape of the economy, class structure, and everyday life. Government expenditures for goods and services rose from 13 percent of the gross national product in 1950 to 20 percent in 1960 and 23 percent in 1970; employment in the public sector increased from 13 percent of the work force in 1950 to 17 percent in 1961 and 20 percent in 1971 (U.S. Bureau of the Census, 1972: 216,312,430). Social science research has been one area of major governmental expansion. Federal investment in social research jumped from $6 million to $421 million annually between 1951 and 1971, a faster rate of growth than that in overall federal expenditures or in its investment in other scientific research. By 1971 nearly 7 percent of the federal research budget was allocated to the social sciences, still a relatively small proportion but one that was more than double that of two decades earlier (Table 1.1). The significance of government involvement in social research is perhaps more striking when viewed from the standpoint of the academic researcher. In 1970 nearly two-fifths of all expenditures for social research in academic institutions derived from federal agencies (Table 1.2).

Table 1.1

Federal Government Research Expenditures, 1951-1971

Expenditures	Fiscal Year				
	1951	1956	1961	1966	1971
All research					
Amount (dollars in millions)	217	844	2,337	5,271	6,150
Percent of total federal expenditures	0.47	1.20	2.39	3.91	2.91
Social science research [a]					
Amount (dollars in millions)	6	30	95	266	421
Percent of total federal expenditures	0.01	0.04	0.10	0.20	0.20
Percent of total federal research expenditures	2.80	3.57	4.07	5.05	6.85

Source: National Science Foundation (1972a: 3,75) and earlier volumes in annual series.

[a] Includes anthropology, economics, history, linguistics, political science, psychology, and sociology.

Table 1.2

Social Science Research Sources and Expenditures in Academic Institutions, 1964-1972
(Dollars in millions)

Fiscal Year	All Social Sciences		Psychology		Other Social Sciences[a]	
	Total expenditure	Percent from federal government	Total expenditure	Percent from federal government	Total expenditure	Percent from federal government
1964	169.34	40.1	43.98	61.4	125.31	32.7
1966	223.78	41.8	55.48	60.3	168.29	35.7
1968	324.55	45.0	77.46	61.3	247.09	39.9
1970	352.51	39.2	79.53	56.6	272.98	34.1

Source: NSF (1972b:46).

[a] Includes anthropology, economics, history, linguistics, political science, and sociology.

The many agencies and units of the federal government constitute the core institution in the set of institutions that comprise the state. The state consists of the institutions primarily responsible for maintaining the society's dominant mode of social organization. Maintenance responsibilities include the control of internal disorder and political threats to the dominant mode of organization, armed defense of the society against external threat, preservation of public confidence in the social order, and protection and creation of the conditions necessary for capitalist economic activity.

State institutions include the national government, state and local governments, the education system, and quasi-public bodies such as the National Academy of Sciences, the Committee for Economic Development, and many defense contractors. The actual role of specific state institutions in executing the task of societal maintenance remains an issue of continuing theoretical and empirical debate. The primary functions analysts have attributed the federal government illustrate the range of theoretical perspectives on the role of the state institutions: Parsons(1969) conceives of the national government as a power generating complex for the implementation of societally defined goals; Mills(1956) viewed the federal government as a bureaucracy oriented toward serving the narrow interests of an elite stratum dominating the top positions in government and business; Miliband(1969) characterizes the central government as a primary instrument of capitalist class domination. The principle functions analysts have

identified in specific areas of state activity--such as education, foreign policy, defense procurements, or social welfare--cover a comparable range (on education, for instance, see Parsons [1959], Althusser [1971], Collins [1971], Parsons and Platt [1973], Bowles [1974], and Touraine [1974]).

Unlike some areas, the role of the state in sponsoring social research in the United States has received only scant analytic attention, although in recent years it has been a topic of considerable political and practical debate in academic and government circles. The aim of the present study is to help identify the central purposes underlying the involvement in social research of the state institution chiefly responsible for state research policies — the federal government. It is also aimed at evaluating the consequences of state investment in social research for the priorities, organization, and orientations of the social science disciplines.

Both state policy makers and social scientists have given considerable thought to questions related to governmental support for the social research, and their statements are highly instructive. But their beliefs are unlikely to be valid measures of state interest in social research since they will tend to reflect both true state objectives and ideologies designed to obscure those objectives. A more valid source of data is the actual operation of the state itself. The fine structure of its social research policies can rule out some hypothesized state purposes and lend support to others. Such a technique has been usefully employed by analysts for identifying underlying governmental aims in other areas. Piven and Cloward (1971), for instance, examined the close association of public relief in the United States with the level of political disorder and prevailing wage rates. They concluded that the trends were consistent with one postulated state purpose--control of political protest without undermining the labor market--and incompatiable with another possible function--assistance to poor people unable to meet their basic human needs. Similarly, Balbus (1973) studied the role of local social control agencies during the black inner-city rebellions of the late 1960's, and he concluded that the details of the repression (such as the duration of detention and the severity of the sentences meted out to rioters) could be best explained by assuming that state agencies are constrained by two, and at times conflicting, aims--control of political

revolts and maintenance of state legitimacy. Other analysts have used a similar strategy for identifying the national government's objectives in maintaining a large military budget (see Rosen [1973]) and the structuring rationale of its economic and military policies abroad (see Rosen and Kurth [1974]).

A similar type of analysis is employed here. The pattern of state activity chosen for concentrated analysis is the transfer of social research funds between two state institutions--the national government and the education system. These institutions have been selected because the first is the primary source of state funds for research and the second is the primary locus of research performed with state funds. In 1970, for example, 79 percent of the state's total research outlay was made by federal agencies (local governments and academic institutions contributed 9 and 12 percent respectively). At the same time, 44 percent of the 6.5 bilion dollars invested in research by the state were consumed in academic institutions, followed by 28 percent in federal agencies, 21 percent in private industry, 6 percent in other nonprofit institutions, and 2 percent by state and local governments. (figures are derived from Table 1.3). A transfer table similar to Table 1.3 is not available for the social science research alone. However, estimates of the overall distributions of research funds by support sources and performance locations in 1967 reveal profiles for the social sciences that are not markedly different from those for the other sciences.[1] Though we cannot be entirely certain, this suggests that the inter-institutional transfer patterns for the social sciences parallels

Table 1.3

Sources of Research Funds and Performers of Research, 1970[a]

(Millions of dollars)

Sources of Research Funds	Performer of Research							
	Government		Academic institutions	Academic inst. administered FFRDC's[b]	Industry	Other nonprofit institutions	Total	Percent distribution by source
	Federal	State & local						
Government								
Federal	1830	38	1455	500	1300	395	5518	55.4
State & local	--	60	372	--	10	30	472	4.7
Academic institutions	--	1	553	--	--	--	554	5.6
Industry	--	2	57	--	2990	60	3109	31.2
Other nonprofit institutions	--	2	133	--	--	165	300	3.0
Total	1830	103	2570	500	4300	650	9953	
Percent distribution by peformer	18.4	1.0	25.8	5.0	43.2	6.5		

Source: National Science Foundation (1969a: 14,15)

[a]Estimated figures.

[b]Federally Funded Research and Development Centers administered by colleges, universities, and university-consortia. FFRDC's administered by nonprofit institutions and industry are included in their respective sectors.

that for all the sciences. Thus it is a reasonable assumption that the federal government is the chief state source of funds for social research and the colleges and universities are the primary settings where state supported research is conducted.

The unit of analysis used in this study is the individual academic social scientist. The choice of this unit for evaluating the functions of state support for social research is a product of both the character of research work in academic settings and pragmatic design considerations.

The organization of academic social research has little formal structure and is predominantly individualized. Research is primarily conducted by single individuals or by small groups of two or three investigators. That the large research group is clearly the exception in academic social science is confirmed by a 1969 national survey of nearly 7,000 social scientists on the faculties of a cross-section of academic institutions. From 75 percent (psychology) to 85 percent (anthropology) of the respondents asserted that they were engaged in scholarly research work that would lead to publication, and of these research oriented social scientists, 95 percent or more in each field indicated that they either worked alone or at most with one or two colleagues. The proportion working entirely alone ranged from 61 percent in psychology to 79 percent in political science. In this same survey, the proportion of the members of a discipline reporting that they had received support from federal agencies over the previous 12 months ranged from 15 percent in political science to 36 percent in anthropology and psychology. It appears, therefore, that federal research grants and contracts are nearly entirely consumed by faculty members working alone or in very small teams. This would also suggest that applications for federal support are mainly submitted by single academic researchers or tiny groups. The

obvious major exception to this pattern--the federally funded research and development centers (FFRDC's) administered by academic institutions--is not of sufficient magnitude to qualitatively alter the dominant mode of organization. In 1970 only 3 percent of federal social research funds spent in academic institutions were consumed in social science activities in FFRDC's, and fewer than 400 social scientists were primarily employed in such centers. (National Science Foundation,1972b: 78,83). Thus the selection of the individual academic social scientist as the unit of analysis is consistent with the highly decentralized organization of academic research.

The practical methodological consideration behind the use of this unit was a desire to capitalize on the greater availability of information about individual social scientists than about other types of units in the federal government-academic institution complex. Examples of alternative types of units would include federal research grants and contracts, federal research programs, colleges and universities, academic departments, or publications resporting the results of social research. Unlike most of the latter units, individual social scientists can be directly approached for detailed information about their research situation. In addition, substantial information about individual social scientists is already in the public domain through professional association directories and other sources.

The chief source of information used in this study is a national survey of 1,079 academic social scientists in four social science disciplines: anthropology, economics, political

science, and psychology. Other useful sources include personal interviews with 109 social scientists in the same disciplines who were affiliated with six New England universities, two national faculty surveys conducted by the American Council on Education, and personal observations and interviews on the basic research program in one federal agency, the U.S. Office of Education (prior to the transfer of this office to the newly formed National Institute of Education).

The plan of the report of this study is as follows. The next section describes the research design of the national survey and New England interviews. The third section considers the question of the functions of federal support of social research by analyzing the patterns of federal research support for academic social scientists. The fourth section considers whether there are effects of federal grants and contracts on the internal structure of the social science disciplines. The final section summarizes and interprets the general findings of the study.

Section I

NOTES

1. One estimate of all sources of support for research and development in the United States shows comparable distributions for social science and other sciences:

Sources of Research and Development Funds by Field of Science, 1967

Sources of funds	All sciences	Social sciences	Other sciences
Federal government	61%	48%	62%
State government	(a)	2	(a)
Academic institutions	1	6	1
Industry	36	36	36
Other nonprofit institutions	1	8	1
Total dollar value(millions)	$23,686	$803	$22,883

Source: Behavioral and Social Sciences Survey Committee (1969:24).

[a]Less than 0.5 percent

Data are available on the transfer of social research funds from the federal government to academic institutions. Academic social research is less dependent on federal support than other sciences (41 percent of the expenditures for social research in academic settings came from federal agencies,while the comparable figure for other science was 67 percent), but the federal social research dollar is substantially more concentrated in academic institutions than is federal research support for the other sciences (43 versus 34 percent; all figures are based on the table below).

Transfer of Federal Research Funds to Academic Institutions, 1970

(Millions of dollars)

Source	Performer				Total
	Academic institution[a]		Other performers		
	Social science	Other science	Social science	Other science	
Federal government	143	1,894	186	3,379	5,602
			3193[b]		4,351[b]
Other sources	205	954			
Total	348	2,848	6758[b]		9,953[b]

Source: National Science Foundation (1969a:14,15; 1971a:105; 1972b:46 83).

[a]Includes federally funded research and development centers administered by academic institutions.

[b]Estimated figures.

2. This survey was sponsored by the Carnegie Commission on the Future of Higher Education and the American Council on Education. Six in seven faculty members at 303 American institutions of higher education (picked on a disproportionate random sampling basis) were mailed a lengthy questionnaire. A fifth of the 303 institutions were junior colleges, a quarter were universities, and slightly over half were four year colleges. The usable return rate was 60 percent, yielding a total of 6,992 academics whose first major research interest lay in one of the social science disciplines. Those with doctorates were more likely to complete the questionnaire than those without. Also, there was an oversampling of more selective institutions (measured in achievement scores of the student body), and selectively correlated with the proportion of faculty engaged in research and receiving external research funds. A weighting system has been used throughout our analysis of this data to correct for the disproportionate sampling and return biases; the weighting procedure is described in Bayer (1970).

In December, 1972, and spring, 1973, the American Council on Education resurveyed the same population. A similar sampling frame and weighting procedure were used although in the second study a more complete list of faculty members was obtained. The overall response of usable questionnaires was 49 percent, of which 6,860 were teaching academics whose first major research interest was in one of the social science disciplines. This set of social scientists is not precisely comparable to the 1969 set since those engaged in no teaching activities were included in analyses of the first

survey but have been excluded from analyses of the second survey. The weighting system used in our analysis of the 1973 survey is reported in Bayer (1973).

Throughout this report the first survey is referred to at the 1969 National Faculty Survey and the second is called the 1973 National Faculty Survey. I would like to thank Seymour Martin Lipset, Everett Carll Ladd, Jr., and the Social Science Data Center, University of Conneticut, for making the 1969 survey available, and Alan E. Bayer, Jeannie T. Royer, and the American Council on Education for providing the 1973 survey.

Section II
STUDY DESIGN

The primary source of data for this study is a national mail survey of academic social scientists in four disciplines. A regional interview survey of academic social scientists provided more in-depth information. The design, responses rates, and other characteristics of these surveys are reported in this section.

National Social Scientist Mail Survey

The appropriate population is all social scientists engaged in research in academic institutions. I have taken social scientists to be members of the five major social science disciplines--anthropology, economics, political science, psychology, and sociology. Analysis of the 1973 National Faculty Survey revealed that great majorities of the social scientists in these fields were actively engaged in research (the proportion ranged from 79 percent in psychology to 91 percent in anthropology), indicating that the population of all academic social scientists, whether involved in research or not, can serve as a reasonable proxy for the population of academic social scientists actually doing research.

Because of my affiliation with sociology it has not been included in the study. There is considerable inter-disciplinary variation in the level of federal research support and the elimination of sociology might significantly reduce the range of federal-academic relations, but Table 2.1 indicates that sociology occupies a middle ground among the five disciplines in terms of federal research

Table 2.1

Federal Research Support for Academic Social Scientists, 1968-1973

Discipline	Federal research dollars expended in academic institutions per academic social scientist, 1969-1971 ($1,000/social scientist)[a]	Proportion of academic social scientists supported by federal funds		
		"Work" supported 1968 (spring)[b]	"Research" supported 1969 (spring)[c]	"Research" supported 1973 (spring)[d]
Anthropology	(n.a.)	38%	35.7%	35.3%
Economics	1.6	31	28.4	36.5
Political Science	0.9	21	14.8	26.1
Psychology	3.0	43	35.9	46.7
Sociology	2.7	33	27.3	43.8

Source: Column 1, National Science Foundation (1972b:28,59); column 2, National Science Foundation (1969b:178,180); column 3, 1969 National Faculty Survey: column 4, 1973 National Faculty Survey.

[a]Based on a 1970 survey of 2,198 institutions of higher education. The response rate was 72 percent and estimates were made for the nonresponding institutions (for details, see National Science Foundation [1972b: Appendix A]). The figures in this column are based on federal research expenditures for fiscal 1969 (i.e. 1969-1970) and the numbers of academic social scientists employed as of January, 1971.

Table 2.1 (continued)

[b]Based on the 1968 National Register of Scientific and Technical Personnel Questionnaires were mailed in March, 1968, to 555,000 members of 13 major professional s[illegible] ties. "Full professional standing," based on academic training and work experience, was the criterion for inclusion in the survey. The final tabulation included 298,000 individuals, or 54 percent of the original population, with most of the attrition due to nonresponse. There is some overrepresentation of those with doctorates (for details, see National Science Foundation [1969b: Appendix B]). The figures in this column represent responses to the following item in the questionaire: "Is any of your work being supported or sponsored by U.S. Government Funds?"

[c]Based on the 1969 National Faculty Survey question: "In the past 12 months, did you receive research support from federal agencies?" The proportions are based on only those social scientists who had indicated they were engaged in scholarly work or research expected to lead to publication.

[d]Based on the 1973 National Faculty Survey question: "In the past 12 months, did you receive support for your scholarly work and research (either as principal investigator or as a member of a research team)?" A social scientist was considered to be funded if he or she had received support from an federal agency either as a "principal investigator" in some "other capacity." The proportions are based on only those who had specified that had been engaged in "research, scholarly writing, or creative work" over the previous 12 months.

dollars per academic social scientist and the proportion of academic social scientists receiving at least some federal support (in 1968 and 1969 sociology ranked third among the five disciplines in the fraction of members receiving federal support; in 1973 it ranked second). Thus, the exclusion of sociology does not limit the range of overall federal support granted the various disciplines. However, it should be noted that in recent years sociology has accounted for approximately a fifth of all federal expenditures on social research in academic institutions (18 percent in 1970), and sociology is an outlier on some aggregate dimensions of federal-social science relations (e.g. in 1968, of the five major disciplines, sociology ranked lowest in the proportion of its federally work supported academic members engaging in efforts related to national defense programs [National Science Foundation, 1969b: 178,180]).

For lack of a full enumeration of the defined target population -- anthropologists, economists, political scientists, and psychologists employed in academic institutions -- our sampling population has been taken to be the academic membership of the major professional associations representing the four disciplines: the American Anthropological Association (AAA), American Economic Association (AEA), American Political Science Association (APSA), and American Psychological Association (APA). A pilot study using a 15-page questionnaire was conducted during the early fall, 1973, with random samples of 50 academic social scientists listed in each of the most recently available association directories. The instrument was subsequently

condensed to 12 pages and sent in December, 1973, to 500 academic scientists randomly sampled from each of the four association directories.[1] A second copy of the questionnaire was mailed in January, 1974, to those who had not yet replied, and a final follow-up letter was mailed February, 1974 (the questionnaire, cover letters, and final follow-up letter are reproduced in Appendix A). The sample can be considered reasonably representative of anthropologists, economics, political scientists, and psychologists affiliated in teaching or research capacities with American colleges and universities during the 1973-1974 academic year. Approximately four months after the initial mailing 1,079 usable questionnaires had been returned, for an overall return rate of 54.0 percent.[2] There was considerable variation in the return rate by discipline, ranging from 44 percent for economics to 53 percent for anthropology, 58 percent for political science, and 61 percent for psychology. It is not clear what accounts for this range in response rates. However, an analysis of the response rate reveals no significant correlation between the social scientist's likelihood of responding and his or her academic rank, sex, year and type of graduate degree, status of graduate and present department, or rate of citation to one's work.[3] Thus, while the economists are slightly older, less likely to hold a Ph.D., and less often cited than members of the other disciplines, none of these distinctive traits are significantly associated with a propensity to respond to the questionnaire, either in economics or in the other fields.[4]

More cited economists and psychologists were slightly more

likely to respond than less cited colleagues (19 percent of the economics respondents but 16 percent of the nonrespondents had received more than one citation to their work in 1973; the percentages are 42 and 32 respectively for psychology), but the reverse holds in anthropology and political science (26 versus 30 percent in anthropology and 21 versus 25 percent in political science). Respondents in psychology were somewhat more likely to have an appointment in a top ranked department than nonrespondents (20 versus 16 percent), but the opposite is true in the other disciplines (20 v. 23, 8 v. 12, and 11 v. 14 percent for anthropology, economics, and political science, respectively). The only differences that were consistent across all disciplines for which information was available (it was lacking for anthropology on these dimensions) was the type of highest degree and graduate degree department status. For instance, holders of Ph.D.'s were somewhat more likely to respond (the largest difference is in economics, with 77 percent of the respondents holding a doctorate but 72 percent of the nonrespondents having earned this degree).[5] But overall the distinctions between respondents and nonrespondents are sufficiently small to warrant the assertion that respondents are reasonably representative of the sampling population used in this study.

However, comparison of the respondents in this study with profiles of those replying to the 1973 National Faculty Survey (NFS) reveal that, despite our efforts to obtain a representative cross-section of academic social scientists, our sample has an elitist bias. Although the median ages of the members of the

four disciplines are comparable for the two surveys (ranging from 62 to 67 in ours and 63 to 65 in the 1973 NFS), the proportion holding professorships varies from 33 to 43 percent in our study but only 21 to 39 percent in the 1973 study. By even greater contrast, the proportion holding Ph.D.'s ranges from 77 to 95 percent in our study but only 41 to 58 percent in the 1973 NFS. These biases have not been adjusted for in the ensuing analysis. While our sample is a reasonable cross-section of the academic members of the four scholarly associations, it clearly over-represents academic social scientists with doctorates and high academic rank, and, by implication, those who are more research oriented and more successful in their research endeavors.

Regional Social Scientist Interviews

Personal interviews were conducted with 108 academic social scientists in the anthropology, economics, political science, and psychology departments of six New England unversities. These interviews were conducted by myself for the purpose of examining in greater detail the experiences of social scientists in securing research support and related issues. The interviews were designed to supplement the more systematic but necessarily more skeletal information obtained from the national mail survey.

For reasons of access, the interview population was limited to social scientists affiliated with academic institutions in three New England states. The population was further limited to social scientists on the faculty of universities (faculties of four-year and junior colleges were excluded). This restriction was imposed to ensure reasonable concentrations of social scientists engaged in research and to maximize the proportion that had dealings with the federal government. In the three New England states the 1972-1973 Education Directory of the U.S. Office of Education identified 150 institutions offering at least a two-year program of college level studies, and 20 of these offered the doctorate degree in at least some fields (U.S. Office of Education, 1972). Six of the doctorate granting institutions were dropped from consideration--one because of my affiliation with it and five because of the small size or nonexistence of their social science faculties. The 13 remaining universities were divided into two groups according to whether the average freshman achievement test scores (Scholastic Aptitude Test math-

ematics and verbal scores) for 1970-1971 fell above or below 600 (scores provided by Furniss, 1973). The universities were stratified on this variable since it is highly associated with a number of relevant institutional traits, including receipt of federal research support. Three universities were sampled from among the group of high freshman achievement schools and three from among the low group. These six universities comprise the institutions from which individual social scientists were drawn for the interviews. In fiscal 1970, five of these universities received between one and six million dollars in federal research and development funds, while the sixth held more federal support than the total of the other five combined (National Science Foundation, 1971b).

The total number of faculty members in residence and affiliated with the anthropology, economics, political science, and psychology departments of the six universities during the 1973-1974 year was 382 (the respective numbers for the four disciplines were 44, 97, 106 and 135). To ensure that interviews were conducted with approximately equal numbers in each discipline, the sampling fractions were set at 0.75 for anthropology, 0.33 for economics and political science, and 0.25 for psychology.[6] The social scientists were stratified by academic rank (assistant, associate, and full professor) and a proportionate random sample was taken within rank and department. This produced 121 names that were nearly equally divided among the four disciplines. Interviews lasting one hour on the average were completed with 108 individuals between October, 1973 and June, 1974, for a completion rate of 89 percent.[7] The interview schedule is reproduced in Appendix B.

Section 2

NOTES

1. The professional association directories are listed in the table below. Association members in these directories were eligible for inclusion in the sample if the following criteria were met: the biographical entry was sufficient to indicate that the member held an academic teaching and/or research position (a primarily administrative role led to exclusion), the academic institution was in the United States, and the member was not retired. The directory of the American Anthropological Association (AAA) presented special problems since the available information included only the member's preferred mailing address. Therefore, a member of the AAA was eligible for inclusion only if he or she were a "fellow" of the association (the membership category that includes most academic faculty) and either (1) the preferred mailing address was an academic department or (2) the member was affiliated with an academic department according to either (a) the AAA's guide to 258 college and university departments offering instruction in anthropology during the 1972-1973 academic year (AAA, 1972), or (b) the 1973 National Faculty Directory, a directory that lists over 400,000 faculty members during the 1972-1973 academic year (college catalogs and class schedules are the principal sources of information used in the compilation [American University Press Services, 1972]).

The factor more seriously affecting the comparability of the four sample populations is the relatively dated publication

Information Sources for Membership of Professional Associations

Discipline	Professional association	Membership source	Type of information in source	Date or period	Size of membership	Questionnaire return rate
Anthropology	American Anthropological Association (AAA)	AAA,1973	Membership list	Jan.1,1973	8,345	--
Economics	American Economics Association (AEA)	AEA,1970	Mail questionnaire to membership	Junel,1969	18,576	69%
Political Science	American Political Science Association(APSA)	APSA,1973	Mail questionnaire to membership	mid-1972	(n.a.)	(n.a.)
Psychology	American Psychological Association (APA)	APA,1973	Mail questionnaire to membership	Jan.1,1973	35,254	79%

of the American Economic Association directory. The AEA directory was prepared approximately three years before those of the other associations, and it appeared four years before the time of this study . Economists joining the association since 1969 are not in the sample population, and thus very young faculty are underrepresented in the survey sample. When available, more recent mailing addresses for AEA members were obtained from the 1973 National Faculty Directory.

2. This overall response rate is comparable to those obtained in other studies of similar populations using similar instruments and follow-up procedures. For example, the 1969 and 1973 National Faculty Surveys were national cross-sections of academic faculty members. The 1969 survey obtained a response rate of 59.8 percent after a follow-up postcard and a second mailing of the questionnaire; the 1973 survey received usable responses from 48.8 percent of its sample after three mailings of the questionnaire (Bayer,1970:4; Bayer, 1973:5). Sprehe (1967) conducted a mail survey of the entire membership of the American Sociological Association during the 1964-1965 academic year, and with two complete mailings of the questionnaire reached a return rate of 50.9 percent. A questionnaire survey by Lodahl and Gordon (1972) of faculty members in elite political science and sociology departments yielded a response rate of 51 and 58 percent, respectively. In a mail survey of the members of the American Political Science Association, Somit and Tanenhaus (1964) obtained a usable response from 51.8 percent of their one-in-five sample.

3. Measures of the social scientist's current academic department status, status of the department from which the highest degree was received, and citation rate are constructed as follows:

Current department status. In 1969 Roose and Anderson (1970) replicated the Cartter (1966) study of the reputation of academic departments that offered graduate degrees over the previous decade. Several hundred members of each social science discipline were asked to rate the graduate faculties and programs of the advanced degree offering department in their respective disciplines. Roose and Anderson ranked the departments according to the average evaluation expressed by the raters on several dimensions, and as a measure of current department status I will use the rank of the social scientist's department on the dimension of "quality of graduate faculty." It should be noted that the raters in the Roose and Anderson study, and earlier such studies as well, represent elite segments of the disciplines (Roose and Anderson, for instance, used raters selected by graduate deans at 130 universities, where the deans had been instructed to pick "knowledgeable scholars" on their faculties), and while there is substantial consensus within these groups, their assessments may not be shared in other sectors of the disciplines. Nonetheless, this type of assessment does tap a significant element of the collective judgement members of graduate department make of one another's graduate faculty reputation (for discussion of inter-rater reliability and the validity of these expert panels' assessments, see Cartter [1966: Chs. 1 & 4] and Roose and Anderson [1970: Ch. 4]).

Highest degree department status. A measure similar to that for the status of the social scientist's current academic department was devised for the standing of the graduate department from which the highest post-graduate degree was received. Studies of reputations of graduate departments have been periodically conducted over the past 50 years, and a social scientist's highest degree department was assigned a rating according to its ranking in the study nearest the year in which the degree was received, as shown in the table below.

Studies Used in Highest Degree Department Status Measure

Study			Year of highest degree for which study was used to rate reputation of highest degree department
Reference	Year conducted	Departments evaluated	
Robertson (1926:161-163)	1924	Departments of 38 major universities (65 universities were then offering graduate degrees)	1928 and earlier
Hughes (1934)	1933	Departments of 59 major universities	1929-1945
Keniston (1959)	1957	Department of 25 major universites	1946-1960
Cartter (1966)	1964	Departments of 106 universities that were either members of the Council of Graduate Schools in the United States or had granted 100 or more doctorates over the preceding decade.	1961-1966

Roose and Anderson (1970)	1969	Departments of 130 universities selected according to same criteria used in Cartter's (1966) study	1967-1974

Studies prior to those of Cartter are substantially less complete and less systematic in their coverage of graduate departments, and consequently the rating of highest degree department status for those receiving their degrees prior to 1961 suffers from considerably more measurement error than for those who earned their degree in 1961 or later. This problem is somewhat mitigated in the present study, however, by the fact that well over half of the members of each discipline responding to our questionnaire had received their highest degree between since 1960 (the proportions for anthropology, economics, political science, and psychology are, respectively, 62, 55, 76, and 64 percent).

Citation rate. Until 1973 the Institute for Scientific Information had included selected social science journals in its Science Citation Index, but in 1973 it initiated an exclusive and extensive citation indexing of social science journals. The Social Sciences Citation Index lists by first author the work to which reference is made in articles published in hundreds of social science journals: 37 journals are indexed in anthropology, 73 in economics, 47 in political science, 149 in psychology, and 59 in "interdisciplinary" social science (84 sociology journals are covered). Virtually all major scholarly journals in the four disciplines in our

study are included in the Social Sciences Citation Index. At the closing of the data collection phase of this study only two volumes of the tri-annual series had become available, covering the first two-thirds of 1973 (Institute for Scientific Information, 1973a, 1973b). The citation rate measure used here consists of the number of times the social scientist was cited in social science journal articles during the first eight months of 1973 (self-citations are not counted). The relatively short span of time for which citation data are available means that measurement error may be significant. Whatever the problems of reliability, the validity of the citation rate index as a measure of scholarly contribution to and impact on a discipline is well established, at least for several science disciplines (see Creager, 1966; Cole and Cole, 1971,1973; Connor, 1972).

4. Respondents and non-respondents are compared in the following table (see the preceeding note for definitions of the department status and citation rate measures):

Characteristics	Discipline							
	Anthropology		Economics		Political Sci.		Psychology	
	Respond.	Non-Res.	Resp.	Non-Res.	Resp.	Non-Res.	Resp.	Non-Res.
Rank								
Instructor	0%	(n.a.)	2.3%	6.6%	5.9%	8.6%	2.3%	5.1%
Assistant professor	19.5		28.6	29.6	37.7	23.3	30.4	31.6
Associate professor	32.7		25.8	22.6	21.1	25.2	27.1	33.2
Professor	43.2		40.6	36.2	32.5	37.1	36.3	38.1
Highest degree								
Master's degree	3.5%	(n.a.)	19.5%	23.3%	18.5%	18.6%	4.0%	8.2%
Doctorate	95.3		77.3	71.5	79.7	78.6	86.4	84.6
Year of highest degree								
Mean	61.1	(n.a.)	59.2	59.5	63.4	61.8	62.1	62.8
Sex								
Percent Male	79.7%	80.3%	96.4%	93.0%	94.1%	90.0%	82.2%	82.4%
Current department status[a]								
Unrated	69.2%	66.5%	81.9%	74.2%	80.3%	76.2%	63.0%	67.5%
Moderately rated	10.5	10.5	10.4	13.8	8.6	10.0	16.8	16.6
Highly rated	20.3	23.0	7.7	12.0	11.1	13.8	20.2	16.0
Highest degree dept. status								
Unrated	20.3%	(n.a.)	36.2%	44.0%	29.8%	31.4%	40.9%	41.2%
Citation rate								
No citations	54.5%	52.2%	73.8%	74.2%	66.1%	61.4%	46.9%	51.0%
One citation	19.2	17.7	6.8	10.2	13.1	13.3	11.6	17.0
Two or more citations	26.3	30.1	19.4	15.6	20.8	25.3	41.5	32.0

[a] Roose and Anderson (1970) rated graduate faculty quality on a scale from zero ("not sufficient for graduate training") to five ("distinguished"). Moderately rated departments are those that received average ratings of 2.0 to 2.9; highly rated departments had average scores of 3.0 of higher.

5. See note 4 above for further details on these differences.

6. Five of the schools had social science faculties totalling between approximately 40 and 60 members, while the sixth school's social science faculty numbered approximately 125. To reduce the latter school's contribution to the interviewee total, the sampling fractions for its departments were reduced by a factor of 0.66 (to 0.50 in anthropology, 0.22 in economics and political science, and 0.17 in psychology).

7. The population, sample, and completed interview numbers for the four disciplines are as follows:

Interview Sample Characteristics

Discipline	Population	Sample	Interviews completed	Completion rate
Anthropology	44	29	29	100%
Economics	97	30	28	93%
Political Science	106	32	27	84%
Psychology	135	30	24	80%
Total	382	121	108	89%

Section III

PATTERNS OF FEDERAL RESEARCH SUPPORT

The state is investing a growing portion of its research and development funds in social research, and a major part of this research is conducted in colleges and universities. It is of course possible that no significant purpose underlies this expenditure of state funds. The state may be promoting no special ends, and its investment in social science knowledge may simply be a non-purposeful outcome of external political pressures. If this is the actual case at present, one consequence is that federal grants and contracts should be randomly or equally distributed among social researchers. It should make no difference what is produced by the sponsored research. Any or all social researchers are equally suitable recipients of financing backing from the state's point of view.

State Purpose in Support of Social Research

A. Primary State Purposes

Purposeful state interest in the production of social science knowledge should lead to non-random patterns of support, depending, of course, on the specific concern of the state. This concern may be oriented toward the requirements of three major potential consumers of social research products. First, the social science disciplines, by definition, benefit from social research. Second, the state itself can make use of social scientific knowledge, both to improve and to legitimize

its activities. Third, non-state institutions, such as business corporations, can utilize social scientific information in a variety of ways to enhance its operations (e.g. management of personnel, market research, economic forecasting). The state may be oriented toward serving the social research requirements of one or more of these potential consumers. Since the various consumers' specific requirements are unlikely to be identical, differing federal research funding patterns can be expected according to the priorities set by the state. Thus the structure of federal grants and contracts to academic social scientists will depend on the consumers being serviced. Consumers and their associated funding patterns are as follows:

Social research for social science. To the extent there is an internally generated and sustained paradigm within a social science discipline, research aimed at advancing and refining that paradigm is by definition one of the central tasks of the discipline (Parsons, 1951: Ch.8; Storer, 1966; Kuhn, 1970; Merton 1973). Yet research is often costly and it usually does not generate its own capital, and it can be argued that the state financially intervenes to ensure the continued growth and advancement of social science for its own sake. Certainly many social scientists contend that this is the only legitimate reason for government involvement. If indeed it is the state's primary purpose in sponsoring social research, it is expected that funding criteria should closely reflect a discipline's internal evaluation of what constitutes significant and high quality research, that is, research that makes the greatest contribution to the advance of the discipline's internal paradigm.

Federal funding should go to academic social scientists who are likely to make the most productive use of it for the benefit of their discipline.

Social research for private consumers. Widespread application of social science research in non-state institutions, particularly business firms, is well documented.[1] While business firms generate their own funds that can be used in research, the costs of privately conducting social research, especially basic research, often remain prohibitive, in part because the firm cannot easily maintain private ownership of its research product. It can be hypothesized that the state therefore subsidizes social research as a service to the corporate economy since the firms cannot individually bear the expense. "In the last analysis," observes O'Connor, "the state is required to coordinate [research and development] because of the high costs and uncertainty of getting utilizable results" (1973:112). If in fact the federal government is supporting social research primarily for private consumers, it is expected that funding criteria should correspond to the specific substantive needs of these consummers. Federal funding should go to academic social scientists who are working on topics of use to private consumers.

Social research for state policy formulation. The federal government and other state institutions have themselves become major potential consumers of social knowledge. A recent report of the quasi-governmental National Research Council calls for increased cooperation between the government and social sciences since "the behavioral sciences are ... an essential and increasingly relevant instrument of modern government." Utilization of

social science is necessary because the "decisions of the President, the Congress, and the executive departments and agencies must be based on valid social and economic information and involve a high degree of judgment about human behavior " (National Research Council, 1968:17,20). The state supports social research, it can be argued, because of its growing appetite for information the social sciences are uniquely equipped to provide. This knowledge is of two types. First, there is general information about the condition of a society, group, community, organization, or institution with which the state interacts. "Social indicators," studies of the structure of the American labor market, investigation of Latin American peasant revolts, and related studies can facilitate state action by clarifying the social character of its operating environment. Second, there is specific information about state activity itself. "Social policy" research can equip the state with better information on the design and implementation of social programs.[2] If the state indeed is sponsoring social research primarily for its own consumption, it is expected that funding criteria should reflect specific governmental needs for substantive information. Federal funding should go to academic social scientists whose research is related to areas of state activity.

Social research for state legitimation. The state can make use of social science research in a second way. Like any institution but more acutely than most, the state's ability to operate is facilitated to the extent that it is generally perceived as serving the public's interest. Government programs are more efficiently executed if normative rather than utilitarian or

coercive means of compliance are applied. Widespread beliefs that the government is benign, fair, and above sectional interests also inhibits the formation of anti-regime political movements (see, for instance, Gurr [1970], Balbus [1973], O'Connor [1973], and Useem [1975]. Social research reinforcing conceptions of the American political system as a pluralist democracy that is rooted in a consensual value system naturally aides state legitimacy; social research validating conceptions of the American political system as a protector of economic privilege that is rooted in capitalist class relations has the opposite effect (compare Rose [1967] with Miliband [1969]). Consequently, the state has a potential interest in supporting social research that bolsters a benign imagery of the state. If in fact this is a primary federal aim in supporting social research, it is expected that funding should go to academic social scientists whose research is likely to help legitimize the state.

B. Secondary State Purposes

In addition to the primary potential purposes underlying the state's investment in social research, two other secondary state purposes may structure its distribution of financial support. These are "secondary" in that they are not concerned with the content of the social research produced but nonetheless have a bearing on federal research policies. One results from problems of mobilizing academic social research resources for service to the state, and the other is a product of the state's role in reproducing the social relations of the society. These secondary purposes and the expected funding patterns are as follows:

Legitimation of social research service for the state. If the state is concerned with any primary purpose other than supporting social research for social science, another distinct funding pattern may result from the necessity of overcoming resistance by academic social scientists to state determination of research priorities. The atomized manner in which academic research is predominantly conducted means that there are virtually no formal ways in which the federal government can ensure that faculty members will orient their work toward federal priorities. While many industrial firms are prepared to deliver a weapons system upon request of the Defense Department, few academic social scientists are part of organizations that the government can readily persuade to deliver a research product. Moreover, the dominant values within the social sciences have traditionally discouraged applied research, whoever the potential consumer may be. Those performing basic reseach acquire high status within the discipline and are otherwise rewarded for their efforts, while those conducting applied research tend to be negatively sanctioned. In the context of an individualized federal granting and contracting system, one relatively practical means for overcoming these barriers is through manipulation of the grant and contract structure.[3] Social scientists of the highest stature in their disciplines can be appointed to federal research advisory boards and review panels, and federal research support can be skewed in their direction as well. Their role as active participant and grant or contract recipient would help legitimize cooperation with the federal government in the minds of members of the

disciplines. In this way a bias against applied research, at least for the state, can be transformed into a positive calling. If this is indeed a secondary purpose of federal funding of social research, it is expected that financial support should go to social scientists with the highest stature within their discipline.

Reproduction of societal social relations. The state both actively and passively helps reproduce the social relations of the social order.[4] By social relations are meant the class, racial, and sexual divisions of the society and the relations between these groups. Reproduction of these relations includes preservation of the dominant-subordinate relationship between whites and minority group members, between men and women, and between the upper class and working class. The state actively reproduces these relations in its educational system, and they are passively maintained by state policies in other areas. Military manpower policies, for instance, discriminate against working class and poor youth and favor the wealthy, thereby perserving within the armed forces class relations that exist in civil society.[5] Similarly, the state can be expected to preserve societal social relations within its social research complex . Major class divisions are not present among academic social scientists since they generally occupy a similar work situation, but sexual and racial divisions of course remain. Consequently, if a secondary state purpose is preservation of the social relations of the society, it is expected financial support should be preferentially allocated to white and male social scientists.

C. Research Productivity

One final factor must be considered that is neither a primary or secondary research funding objective but which nonetheless may significantly structure the distribution of federal support. Social scientists obviously vary in their rate of successfully completing and publishing their research. Productivity rates greatly vary, and this should be of interest to the state when it distributes its research money, for whatever purposes. A highly productive social scientists is a better investment risk than a social scientist with a poor productivity record. Consequently, it is expected that federal funding should go to social scientists with a strong record of research productivity.

Individal Measures of Principle Funding Dimensions

Different state purposes in backing academic social research should lead to different funding principles. Measures differentiating individuals on dimensions corresponding to the various funding priniciples have been developed as follows.

No purpose. Random or equal distribution is the funding principle if there is no purpose underlying federal support for social research.

A. Primary State Purposes

Social research for social science. The associated funding principle is that federal support should be allocated to those most likely to advance the discipline's internal paradigm. Our measure of this dimension is the number of citations in social science journals a social scientist received during the first eight months of 1973. This measure is based on the assumptions that a) a social scientist's research in the past is one of the

best guides to the research expected in the future, and that b) the rate at which an individual's publications are cited by other social scientists is a reasonable measure of the individual's impact on the discipline (see note 2.3 for discussion of this citation measure).

Social research for private consumers. The corresponding funding principle is allocation of federal support to faculty researchers working on topics of use to private consumers. An adequate measure of this dimension could not be devised in the present study.

Social research for state policy formulation. The funding principle is to support those working on topics of use to the state. An adequate independent assessment of an individual's research relevance could not be devised, and I was forced to rely on the social scientist's own judgment of the potential utility of his research. One survey question inquired about the possible applications of the social scientist's recent research: "Apart from your own discipline, do you hope that your research and publishing over the past five years will directly or indirectly benefit any of the following: [17 potential beneficiaries are listed, including "The Federal Government"]. (Q.12)[6] The proportion of each discipline viewing the federal government as a potential consumer is 21.6, 39.4, 34.4, and 15.4 percent in anthropology, economics, political science, and psychology, respectively. A dichotomous policy relevance measure is constructed, with social scientists divided by whether or not they had listed the federal government as beneficiary. It should be cautioned that this index can be considered only moderately reliable since the social scientist's subjective assessment is at best a rough approximation of the

evaluations state policy makers would make.

Social research for state legitimation. The appropriate funding principle is allocation of federal research financing to those whose research helps legitimize the state (and, more broadly, the economic and social interests it serves). Our measure of this dimension is the general political perspective of the social scientist. This measure is based on the assumptions that a) personal political values influence the selection of a topic, the interpretation of research results, and other aspects of the research process, and that b) these factors have a major bearing on whether the research product helps to legitimize the state and other dominant institutions in the society. The political perspective measure consists of a scale comprised of four highly intercorrelated attitude items.[7]

B. Secondary State Purposes

Legitimation of social research service for the state. The corresponding funding principle is for federal support to be allocated to social scientists of high stature and in leadership positions within the discipline. Two measures of intra-disciplinary status are used here. The first is the professional status of the social scientist's current academic department as rated in the Roose and Anderson (1970) evalation (see note 2.3) The second is a summary measure of the number of professional leadership positions (e.g. professional association offices, journal editorships) and scholarly distinctions (e.g. outstanding research award, major lecture invitation) held or received by the social scientist over his or her career. These measures are labeled department professional status and

individual professional status, respectively.[8]

Reproduction of societal social relations. The funding principle is for federal support to be preferentially allocated to white and male social scientists. The number of minority group members in the social sciences is too few to allow for systematic analysis, given the number of cases in our survey. On the other hand, while the number of women is also small, proportions are adequate for analysis in two of the four disciplines (anthropology and psychology).[9] Thus the measure used here is social scientist's sex.

C. Research Productivity

The funding principle corresponding to the state's interest in obtaining a return on its research investment is for federal support to be preferentially granted to social scientists who have a record of high research productivity. The measure of research productivity used here is the scholarly publication rate, since this is the most visible ard concrete index of a social scientist's rate of research completion. The publication rate index is a weighted sum of all scholarly publications divided by the number of years since the social scientist completed his or her highest academic degree.[10]

The potential primary and secondary state purposes in funding academic social research, the associated funding principles, and the corresponding individual measures are summarized in Table 3.1

Table 3.1

Potential Federal Purposes in Funding Academic Social Research and Corresponding Funding Principles and Measures

Federal Purpose	Funding Principle	Measure differentiating individuals on fundings principle dimension
No purpose	Random or equal distribution	
Primary purposes		
Social research for social science	Support those working on research most likely to advance the discipline	C) Citation rate
Social research for private consumers	Support those working in areas of use to private consumers	(not available)
Social research for state policy formulation	Support those working in areas of use to the state	R) Policy relevance
Social research for state legitimation	Support those working on research likely to help legitimize the state	L) Political perspective
Secondary Purposes		
Legitimation of social research service for state.	Support those with high stature and influence in the discipline	D) Department professional status I) Individual professional status
Reproduction of societal social relations.	Support those who are members of the society's dominant class or groups	S) Sex
[Research Productivity]	[Support those with high research productivity records]	[P) Publication rate]

Individual Measures of Federal Funding

Table 3.2 presents a summary profile of the research expenditures and sources of financial support for members of the four disciplines (based on Q.6,10,13,14). The average annual research expenditures averaged $8,120 in economics and $20,820 in psychology.[11] The expenditure distributions are highly skewed, however, and corresponding median values are $1,290 and $1,880, respectively (row 1). On the assumption that "research funds were much more abundant," the social scientists could envision themselves "effectively" spending several times this amount on their research over the next few years, suggesting that appetites for research support are far from satiated (row 2). The fraction of the individual's overall expenditures that derived from federal government sources varied from 17 percent in political science to 39 percent in psychology. This indicates that the federal government is a substantial source of research funds though it is far from being the sole source. On the other hand, there is a substantial association between the level of research expenditure and the fraction of this expenditure contributed by federal agencies. Rows 4 and 5 suggest that the average federal grant is many times the size of the average college or university grant.[12] For instance, in anthropology, of those holding federal grants or contracts, the median value of their largest such grant or contract is $28,000, while of those holding grants from their own institutions, the median value of the largest grant is $1,600. Thus, as the financial scale of the research project increases, the signficance of the federal dollar does as well. Half or more of the members of all four fields are financially backed by

their college or university, from a tenth to a third receive foundation support, and from a third to two-thirds are recipients of federal funds (rows 6 through 11).

Table 3.2

Research Expenditures and Sources of Research Support
(dollars in thousands)

Row No.	Research expenditure	Discipline[a]			
		Anthropology	Economics	Political Science	Psychology
1.	Average annual expenditures[b]				
	Mean	$16.24	$8.12	$8.20	$20.82
	Median	$ 2.96	$1.29	$1.36	$ 1.88
2.	Preferred annual expenditures[c]				
	Mean	$33.17	$23.52	$21.05	$34.31
	Median	$10.09	$ 4.92	$ 4.87	$ 9.90
3.	Proportion of aveage annual[d] expenditures from federal government	37.8%	19.5%	16.9%	38.2%
	Value of largest grant or contract, by source				
4.	Federal government[e]				
	Mean	$28.39	$26.83	$12.46	$67.09
	Median	$ 3.64	$ 0	$ 0	$ 0
5.	College or university[f]				
	Mean	$ 2.06	$ 4.14	$ 2.41	$ 1.65
	Median	$ .68	$ .13	$ .50	$ 0
	Proportion of discipline members with support from funding source[g]				
6.	All federal agencies	60.9%	31.2%	38.8%	48.2%
7.	National Science Foundation	28.6%	10.0%	14.9%	10.6%
8.	Department of Health,Education, and Welfare	22.2%	7.7%	9.7%	36.3%
9.	Other federal agencies	32.0%	23.5%	23.5%	17.5%
10.	Private foundations	33.8%	22.2%	29.8%	11.6%
11.	College or university	68.4%	51.6%	59.2%	49.8%

Table 3.2 (continued)

[a]The range for the number of cases upon which the figures in each column are based are as follows: Anthropology, 226 to 266; economics, 195 to 221; political science, 251-to 289; psychology, 267 to 303.

[b]Average response to the question: "What has been your average annual research expenditures (including salaries) over the past five years, to the nearest $1,000, excluding overhead?" (Q.10)

[c]Average response to the question: "If research funds were much more abundant, how much could you effectively spend per year on your own research over the next few years?"(Q.10)

[d]Average response to the question: "On the average, what proportion of your annual research expenditure over the past five years has come from federal government sources?"

[e]Average response to the question: "Consider for a moment your largest federal research grant or contract over the past five years. [What was] the total amount (excluding overhead)?" (Q.14)

[f]Average response to the question: "Over the past five years, have you received research funds from an office, committee, institute, or center in your college or university? If yes, what was the amount of the largest such grant?" (Q.13)

[g]Rows 6-11 based on response to the question: "Over the past five years (1968-1973), have you received financial backing [from] any of the organizations listed?" A list of 21 federal government units and 10 other types of organizations follows. (Q.6) The proportions represent the fraction who held a "reseach grant or fellowship" or "research contract."

Funding Patterns

All of the funding principles corresponding to potential federal purposes play some role in the distribution of federal funds among academic social researchers, as shown in Table 3.3. Citation rate, policy relevance, individual and department professional stature, and publication rate strongly structure the allocation of funds in all four disciplines. In anthropology, for instance, 84 percent of the highly cited faculty members are federally funded, in contrast to 52 percent of their uncited colleagues (Somer's D=.25); 76 percent of those working on research of potential benefit to the federal government are backed, while 57 percent of those working on non-relevant topics are supported (D=.13); 76 percent of those in the top ranked departments are funded, compared to 57 percent in unranked departments (D=.14); 64 percent of those with high professional standing but only 44 percent with low standing are federally backed (D=.16); and 65 percent of the frequent publishers are supported compared to 36 percent of those who infrequently publish (D=.20). With very few exceptions, the relations are monotonic, with successively higher categories of the funding principle variables having greater proportions funded. If the dependent variable is the dollar amount of the largest federal grant or contract rather than simply whether or not a social scientist had any federal backing, the patterns are still virtually the same. For instance, in anthropology the Somer's D statistic for the association between individual professional stature and receipt of any federal money is .16, and, for the association between individual professional stature and the amount of the largest federal grant or contract it takes

Table 3.3

Proportion of Social Scientists with Federal Funding, by Funding Principle Measures

Funding Principle Measure	Disciplines			
	Anthropology	Economics	Political Science	Psychology
	Percent (N)	Percent (N)	Percent (N)	Percent (N)
Citation rate				
0	52.4 (145)	25.8(163)	34.6(191)	28.9(142)
1	58.8 (51)	40.0(15)	42.1(38)	42.9(35)
2,3	72.0 (25)	45.0(20)	40.0(25)	62.5(40)
4 or more	84.4 (45)	52.2(23)	57.1(35)	75.6(86)
	D=.25	D=.20	D=.13	D=.44
Policy relevance[a]				
No	57.2 (208)	16.7(132)	31.9(185)	44.0(248)
Yes	75.9 (54)	51.2(86)	50.5(97)	73.3(45)
	D=.13	D=.39	D=.18	D=.16
Political perspective[b]				
Conservative	62.5 (56)	18.4(87)	28.8(52)	47.4(57)
2	61.2 (49)	42.9(49)	37.5(56)	43.5(69)
3	55.6 (72)	34.0(50)	37.6(85)	48.0(102)
Liberal	64.0 (89)	42.9(35)	45.8(96)	53.3(75)
	D=.01	D=.22	D=.13	D=.06
Professional status Departmental[c]				
Unrated	56.5 (162)	26.0(181)	35.3(232)	39.3(191)
Moderately rated	60.7 (26)	47.8(23)	56.0(25)	64.7(51)
Highly rated	75.9 (46)	58.8(17)	50.0(32)	62.3(61)
	D=.14	D=.20	D=.11	D=.22
Individual[d]				
Low	44.0 (50)	18.5(65)	30.9(110)	35.6(87)
2	60.5 (43)	36.7(49)	36.5(63)	42.7(75)
3	64.4 (59)	30.4(46)	45.7(46)	44.2(52)
4	70.5 (44)	29.0(31)	54.8(31)	61.1(36)
High	64.3 (70)	53.3(30)	43.6(39)	71.1(53)
	D=.16	D=.22	D=.16	D=.27
Sex				
Female	44.4 (212)	(n.c)	(n.c.)	38.9(249)
Male	65.1 (54)			50.2(54)
	D=.14			D=.07

Table 3.3 (continued)

Publication rate[e]				
Low	36.4 (33)	14.9(74)	20.8(101)	18.3(82)
2	57.4 (94)	35.1(77)	43.0(107)	48.6(107)
3	72.9 (70)	36.1(36)	51.2(43)	70.5(61)
High	65.2 (69)	52.9(34)	60.5(38)	67.9(53)
	D=.20	D=.32	D=.33	D=.43

[a]"Yes" on policy relevance includes those who identified the federal government as a potential beneficiary of their research; "no" on research relevance includes those who did not name the federal government (Q.12).

[b]Category bourndaries are selected so as to yield an approximately equal distribution of cases. The scale is described in note 3.7

[c]Variable categories are described in note 2.7.

[d]The five categories correspond to 0,1,2,3, and 4 or more professional leadership positions and honors (see note 3.8).

[e]Category boundaries are selected so as to yield an approximately equal distribution of cases. The scale is described in note 3.10.

the social science community. This interpretation can be further examined by a more detailed consideration of the distribution of support by specific federal agency. National Science Foundation (NSF) support is separated from that of all other agencies on the assumption that, since NSF is not operating its own social or economic programs, it should be less directly concerned with legitimizing its own operation through politically slanting its support. NSF funding can therefore be expected to be more independent of the social scientist's political perspective than support from other agencies (aggregate distributions of selected agency funds are shown in Table 3.2). In two disciplines the political structure of NSF and non-NSF support does evidence contrary patterns. The association between receiving a non-NSF federal grant or contract and political perspective is slightly positive in anthropology and psychology (D = .03 and .06)--indicating that liberals are more likely to be funded than conservatives--but the association between receiving NSF support and politics in negative (D = -.10 and -.15). Non-NSF agencies are apparently more concerned with securing research from social scientists at the liberal end of the spectrum than is NSF. However, this pattern does not hold in economics and political science. In these disciplines both non-NSF and NSF support distributions on the political perspective dimension are positive (D = .14 and .06 for non-NSF support; D = .17

and .18 for NSF support). Though there is some evidence for the general thesis that the state is supporting social research to elicit legitimizing images of the state, the ambiguous patterns in the data suggest at present that this is probably a low priority concern at best.

The small number of female respondents in economics (5 percent) and political science (6 percent) preclude examination of the sex dimension in these disciplines. In both anthropology and psychology the proportions are adequate (20 and 18 percent), and in both fields women are less frequently funded than men. In anthropology 44 percent of the women but 65 percent of the men are recepients of federal support (D = .14) and in psychology the proportions are 39 and 50 percent, respectively (D= .07).

The evidence is clearly consistent with the assumption that the federal government is supporting social research for social science's own sake (as indicated by the association between citation rate and receipt of federal support), to produce research relevant to state agency operations (association between federal support and policy relevance), to legitimate cooperation of social scientists with the state (association between federal support and departmental and individual professional status), and to ensure productive use of the state's money (association between federal support and publication rate). More ambiguity exists in regard to the state's interest in legitimating its own existence (mixed associations between federal funding and political perspective). In the two disciplines for which data are available, funding is consistent

with the assumption that the state is operating so as to reproduce the social order's social relations (association between federal funding and sex).

However, though the evidence is consistent with these assumptions regarding state purpose, some of the patterns of federal support may be artifactual products of associations among the funding principle dimensions themselves. That is, the association between a funding principle dimension and the receipt of federal funds may be spurious and not reflect state policies. This spuriousness can be illustrated in psychology by the correlations among the receipt of federal funds (F), individual professional status (I), and the log of the publication rate (P) (r_{FI} = .260; r_{FP} = .444; r_{IP} = .448).[13] The partial correlation between individual professional status and federal funds controlling for publication rate is .076, a 71 percent reduction from the simple correlation. By contrast, the partial correlation between publication rate (log) and federal funds controlling for professional status is .376, which is only a 15 percent reduction from the zero-order value. Thus in psychology the zero-order association between individual professional status and receipt of federal funds is largely a result of the association of these two variables with rate of publication. A reasonable interpretation is that the state is intentionally skewing its funds toward those with good records of productivity, and because being well published also tends to raise one's individual stature in the profession, an

unintended byproduct is for social scientists of high professional standing to be better funded than those with low standing. This may well have consequences for the production of social science knowledge different from a flat distribution of federal funds across all levels of stature. However, the consequences apparently are not explicitly intended by state policies. For example, the disproportionate funding of higher status social scientists should help legitimate cooperation with the federal government, but it does not appear that the government is particularly concerned with achieving this, at least through manipulation of its research grants and contracts.

On the assumption that the relationship among the variables are linear and additive, regression analysis allows for the simultaneous examination of the direct relationship between the funding principle dimensions and the receipt of federal funds. The measure of federal funds used in the previous table analysis was the dichotomous federal funds (F) variable. However, for the regression it is advantageous to preserve as much information as possible, and therefore the log of the amount of federal funds (A) is used as the dependent variable in the regression, with the funding principle dimensions forming the set of independent variables (it is assumed that the independent variables are uncorrelated with the residual causes of A). The square of the multiple correlation coefficient for A is substantially larger than that for F in all four disciplines.[14]

The simple correlations among the variables used in the regression are presented in Table 3.4 for anthropology and in note 3.15 for the other three disciplines. The results of the regressions are presented in Table 3.5.

Three of the funding principle dimensions evidence strong direct relationships with funding amount: policy relevance, citation rate, and publication rate. The beta coefficients for policy relevance are consistently over .2 and more than three times their standard error. Citation rate remains strong in anthropology and psychology (betas of .26 and .28 respectively) but drops to low values in economics (.12) and political science (.06). The log of the publication rate maintains significant beta coefficients in economics (.18), political science (.20), and psychology (.22), but not in anthropology (.07). With a single exception, the beta coefficients for all the other independent variables do not exceed twice their standard errors (the exception is departmental status in anthropology, β = .19).

It appears that the dimensions other than policy relevance, citation rate and publication rate play little direct role in structuring the distribution of federal research money. Their simple associations with amount of funds are largely a spurious product of their associations with the three dominant funding dimensions. This is apparent in a decomposition of the zero-order associations into direct and indirect associations by using the basic path algorithm (Duncan, 1966):

Table 3.4

Means, Standard Deviations, and Simple Correlation Matrix of Variables, Anthropology[a]

	Mean	SD	Simple Correlations						
			R	L	D	I	S	P	A
C) Citation rate	0.906	1.158	-.007	.128	.267	.306	.138	.292	.363
R) Policy relevance	0.205	0.405		-.067	.022	.017	.045	.112	.263
L) Political perspective	3.476	1.167			.146	-.123	-.033	-.106	-.032
D) Department prof. status	0.509	0.809				.131	.108	.109	.283
I) Individual prof. status	2.147	1.446					.075	.314	.236
S) Sex	0.210	0.408						.226	.168
P) Publication rate (log)	0.445	0.244							.248
A) Amount of federal funds (log)	0.773	0.797							

[a]Number of cases for all figures is 224

Table 3.5

Amount of Federal Funds (Log) and Funding Principle Dimensions

Funding Principle Dimension	Discipline							
	Anthro.		Econ.		Pol.Sci.		Psych.	
	β	r	β	r	β	r	β	r
C) Citation rate	.262**	.363	.116	.278	.064	.164	.280**	.497
R) Policy relevance	.244**	.263	.283**	.396	.213**	.292	.231	.334
L) Political perspective	-.055	-.032	.067	.158	.086	.092	.054	.127
D) Department prof. status	.188**	.283	.013	.113	.046	.143	.100	.319
I) Individual prof. status	.092	.236	.119	.253	.013	.156	.070	.365
S) Sex	.076	.168	(nc)	(nc)	(nc)	(nc)	-.006	.086
P) Publication rate (log)	.072	.248	.181*	.371	.199*	.297	.216**	.497
Square of Multiple Correlation coefficient	.266		.254		.148		.388	
(number of cases)	(224)		(191)		(250)		(247)	

*Beta coefficient two or more times its standard error.
**Beta coefficient three or more times its standard error.

$$r_{ij} = \sum_k p_{ik} r_{kj} \qquad (1)$$

where i and j are two variables in the system, k takes on the values of all variables from which their is a direct path to j, r is the simple correlation, and p is the path coefficient. In the present case the path coefficients are the same as the beta coefficients, and formula (1) can be rewritten:

$$r_{ij} = \sum_k \beta_{ik} r_{kj} \qquad (2)$$

To illustrate the partition of zero-order associations into their direct and indirect components, (2) is expanded for the case of department professional status (D) and amount of federal funds (A) :

$$r_{AD} = \sum_k \beta_{AK} r_{KD} = \beta_{AC} r_{CD} + \beta_{AR} r_{RD} + \beta_{AL} r_{LD} + \beta_{AD} + \beta_{AI} r_{ID} + \beta_{AS} r_{SD} + \beta_{AP} r_{PD}$$

The direct association between D and A is the fourth term on the the right (β_{AD}), and this can be divided by the simple correlation (r_{AD}) to determine the direct association component of the zero-order relationship. In psychology for instance, this takes a value of 31.3 percent. The indirect association of D with A through independent variable C, R, and P is the sum of the first, second, and last terms on the right ($\beta_{AC} r_{CD} + \beta_{AR} r_{RD} + \beta_{AP} r_{PD}$). To obtain the indirect component of the association of D with A, this quantity is also divided by the simple correlation (r_{DA}); in psychology this quantity is 62.6 percent.

Thus in psychology, the association of department professional status with amount of federal funds is primarily a result of the correlation of department status with policy relevance and the other two dominant variables. The partitions of direct and indirect associations for all variables and disciplines are arrayed in Table 3.6

Policy relevance retains a large direct component in all disciplines (over 69 percent); citation rate maintains a substantial direct component in anthropology and psychology (over 56 percent); and publication rate evidences moderately large direct components in all disciplines (over 43 percent) except anthropology (29 percent). The other variables generally have comparatively small direct associations with the funding amount, and well over half of the indirect component is through policy relevance, citation rate, and publication rate.

Table 3.6

Direct and Indirect Components of the Association of Funding Principle Dimensions with Amount of Federal Funding (log)

Funding Principle Dimension	Discipline[a]							
	Anthro.		Econ.		Pol.Sci.		Psych.	
	Direct	Indirect	Direct	Indirect	Direct	Indirect	Direct	Indirect
C) Citation rate	72.2%	6.2%	41.7%	43.2%	39.0%	44.0%	56.3%	31.2%
R) Policy relevance	92.8	0	71.5	22.2	72.9	24.8	69.2	21.4
L) Political perspective	(nc)	(nc)	42.4	50.7	93.5	3.6	42.5	44.2
D) Department prof. status	66.4	30.1	11.5	81.9	32.2	60.3	31.3	62.6
I) Individual prof. status	39.0	47.9	47.0	49.8	8.3	83.7	19.2	74.3
S) Sex	45.2	40.4	(nc)	(nc)	(nc)	(nc)	(nc)	99.4
P) Publication rate (log)	29.0	42.1	48.8	36.8	67.0	8.7	43.5	40.8

[a]The indirect component is the sum of the indirect effects through variables C,R, and P.

In sum, the evidence is consistent with the assumption that the federal government is supporting academic social research to obtain social knowledge useful in the formulation of state policies (policy relevance pattern). In two of the four disciplines it is apparently committed to the advance of the discipline for its own sake (citation rate pattern). On the other hand, the evidence does not support the other hypotheses on possible state purposes. Legitimation of the state (political perspective patterns), legitimation of conducting social research for the state (professional status patterns), and reproduction of societal social relations (sex patterns) are apparently not major objectives in state support for social science research. Another possible state purpose--production of social science knowledge for private consumers--was not examined here.

It can be argued that the sharpness of the relationship between the funding principle dimensions and the distribution of federal money should be a function of the federal government's overall commitment to social research. Little can be expected from little investment, and the federal government should be less concerned with precisely whom receives its dollars when there are few of them. However, as the level of support consumes an increasingly significant fraction of the state budget, concern with accountability should also increase and policy makers should tend to show greater sensitivity in the allocation of its resources. Since the decades of the 1950s and 1960s were periods of steady growth in state investment in social research, by this line of reasoning the funding principles should be more predictive of the distribution of support at the end of the 1960s than the early 1950s. Similarly, at present,

the funding principles should be more significant in a discipline that is well funded than in a discipline that is poorly endowed. Such is the case among the four disciplines examined in this study. The summary measure of the success of the funding principle dimensions in predicting the distribution of federal funds--the square of the multiple correlation coefficient (R^2) in the regression analysis--ranges from .145 in political science to .388 in psychology. Table 3.7 indicates that there is a close rank order between the R^2 value for a discipline and that discipline's level of federal support. The aggregate federal expenditure on basic research, the average size of the largest federal grant, the per capita expenditure of federal research money in colleges and universities, and the multiple correlation coefficient all take on their lowest values in political science and their highest values in psychology.

Table 3.7

Multiple Correlation Coefficient and Level of Federal Research Support, by Discipline

Discipline	Multiple correlation coefficient squared (1973-74)		Mean value of largest federal grant or contract (1973-74) ($1,000)		Federal research dollars expended in academic institution per academic social scientist (1969-71) ($1,000/social scientist)		Federal basic research expenditures (1971-72) ($1,000,000)	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank
Political Science	.15	4	$12.5	4	0.9	(n.c.)	2.7	4
Economics	.25	3	26.8	3	1.6	(n.c.)	25.0	2
Anthropology	.27	2	28.4	2	(n.a)	(n.a.)	9.9	3
Psychology	.39	1	67.1	1	3.0	(n.c.)	58.4	1

Source: Column 1, Table 3.5; column 2, Table 3.2; column 3, Table 2.1; Column 4, National Science Foundation (1974a:46)

Discussion

It should be cautioned that some of the measures used here for gauging funding principle dimensions may be tapping dimensions other than those for which they were intended. For instance, assume that the government invested its entire 1960-65 research budget in social research needed for policy formulation. Assume further that those social scientists who received funding acquired greater scholarly visibility in their discipline, because they published more, because they published work of higher scholarly quality, or because receipt of a federal grant or contract carried prestige value within the discipline. Then those who were federally funded in 1960-65 are more likely to be cited in 1970 by their colleagues than those who had not received state attention. If it is further assumed that the measure of research relevance is substantially less than perfectly reliable, then a direct association may appear in a regression between citation rate and funding amount not because the state is committed to building social science for its own sake, but because citation rate is a partial measure of past research relevance to the state. Without longitudinal data, the significance of this problem cannot be fully determined. However, in the present analysis I have assumed that the magnitude of the problem is insufficient to significantly invalidate the measures employed.

During the 1969-1970 academic year the federal government spent more than $138 million on social science research in American colleges and universities (National Science Foundation, 1972b:59). The investment was not arbitrarily distributed to

any interested researched. Rather, the results here indicate that two major principles structured the allocation of such funds. These are a state interest in producing social research useful for state policy formulation and a state interest in continued internal development of the social science disciplines. Social scientists engaged in research of high utility to the discipline and/or the state are much more likely to receive funding for their work than colleagues working on less relevant topics. Also, social scientists with proven records of research productivity are also more likely to be backed with state funds than faculty members with weaker outputs.

These patterns are consistent with the assumption that the state's objectives in supporting academic social research are twofold: the advancement of the social sciences and the generation of social research useful for state policy formulation. The absence of other patterns tends to rule out three other potential state functions in investing in social research. The federal government does not appear to be concerned with legitimizing the state, with reproducing societal social relations, or with legitimizing the conduct of academic inquiry for state ends. This does not imply that the state is not oriented toward such ends in other areas of activity. In fact, substantial theoretical and empirical arguments for such a position can be readily developed for other realms of federal expenditures. But the present data indicate that such functions are not the basic objectives behind federal support for social research. Further research is required for determining whether the government is also committed to serving private interests, most likely those of business, in supporting social research

Section III

Notes

1. See Baritz (1960), and Lazarsfeld, Sewell, and Wilensky (1967) and Wilson, Mitchell, and Cherns (1971), for examples.

2. Discussions of the utility of social science research for federal policy making can be found in the following: Pool et al. (1963); Blumstein and Orlansky (1965); U.S. House Committee on Foreign Affairs (1965); Eakins (1966); U.S. House Committee on Government Operations (1967); Lazarsfeld, Sewell, and Wilensky (1967); Nelson (1968); Ranney (1968); National Research Council (1968, 1969, 1971); Beals (1969); Crawford and Biderman (1969); The Behavioral and Social Sciences Survey Committee (1969, plus a set of individual reports on the separate disciplines); Lyons (1969); Reagan (1969); National Science Board (1969); Cherns (1970); U.S. Department of Health, Education and Welfare (1970); Annals (1971); Horowitz (1971); Cherns, Sinclair and Jenkins (1972); Orlans (1973).

3. Another means for reducing social scientist resistance to working for the state that has received some attention is the formation of "applied" social science units within academic institutions whose structure would overcome the anarchy and anti-application orientation of academic social science. One such proposal was put forward by a group of social scientists in 1969; this panel recommended that consideration be given the establishment of "broadly based training and research programs in the form of a Graduate School of Applied Behavioral Science" to contribute "both to a basic under-

standing of human relationships and behavior and to the solution of persistent social problems" (Behavioral and Social Sciences Survey Committee, 1969:201). The research would be oriented toward "public policy and social problems," i.e. research required by government agencies for solving what they define are the nation's "social problems."

4. See Miliband (1969), Altvater (1973), Poulantzas (1973), and Bowles (1974).

5. For empirical evidence bearing on this point, see Useem (1973: Ch. 3.).

6. The full question is reproduced in Appendix A; the number in parentheses serves as a guide to its location in the appendix.

The validity of this measure of individual research policy relevance can be examined as follows. Social scientists engaged in research that is likely to be utilized by the government are also likely to be called upon by government agencies to serve as consultants and advisors, and to prepare written reports for those agencies. Therefore, if this measure is valid, compared to social scientists who report then their research is unlikely to be utilized by the government, those indicating probable government application are more likely (1) to be a consultant or an advisor to a federal agency, and (2) to have authored repor for a federal agency.

The policy relevance measure is dichotomous, with respondents placed according to whether they identified the federal government as a likely consumer of their research. The consulting measure is constructed as follows. Respondents were asked to identify

the federal agencies with which they had served over the past five years as a "member of a grant review panel or study group, member of advisory board or group, regular consultant, or occasional consultant" (Q.6). The consulting variable was dichotomized by dividing the social scientists according to whether they had served in at least one of these capacities with at least one federal agency. The government report measure is based on a question asking for the number of authored or coauthored "reports for federal agencies and commissions" (Q.34). This variable is scored according to the number of reports completed, with seven or more coded as seven.

The association between policy relevance and government report is positive in all four disciplines (Somer's D values are .21, .10, .20, and .16 for anthropology, economics, political science, and psychology, respectively). This relationship is maintained even when the variable most likely to be causing a spurious association--holding a federal grant or contract--is taken into account. For instance, among those receiving federal funds within the previous five years, the association between policy relevance and government report is undiminished from the zero-order association (D values of .29, .03, .27, and .20). That is, among social scientists with recent federal backing, those whose work is self-assessed as being of probable use to the government are significantly more likely to have prepared special reports for federal agencies than those not engaged in such research.

Similar patterns are present in the relationship between policy relevance and consulting. The simple associations are consistently positive (Somer's D values of .09, .23, .24, and .13). If the National Science Foundation is treated distinctly from the other,

more applied, agencies, then among social scientists who have been serving as consultants, in all four disciplines those engaged in policy related research are disproportionately more likely to be consulting with an applied agency than with the National Science Foundation. Taken together, the consistencies in these observed patterns indicate that this measure of policy relevance can be considered an adequately valid measure.

7. The items comprising the political perspective scale are as follows.

Political Perspective Scale Items

Item	Mean	Std. Dev.	Item-scale correlation
Blue collar workers should have a much greater say in the way their factories and this country are run. (Q.18)	3.66	1.76	.629
The radical student movement has been disruptive of academic life without contributing much (Q.18)	4.03	1.87	.715

A high guaranteed annual income would generate serious problems for the U.S. economy since many people would not work without the need for money. (Q.18)	5.02	1.88	.691
How would you characterize yourself politically at the present time.. ...(left, left-liberal, liberal, middle-of-the-road, moderately conservative, strongly conservative, right). (Q.20)	3.01	1.27	.659

Cronbach's alpha = 0.550

Values reported for the means, standard deviations, item-to-scale correlations, and Cronbach's alpha (Guilford, 1954:385) are for all disciplines combined. Item intercorrelations are substantially the same within each of the disciplines. The Likert-type response categories and their coding values for Q. 18 items are: Strongly agree (1), agree with reservations (3), disagree with reservations (5), and strongly disagree (7). The seven response categories for Q. 20 are coded from 1 (left) to 7 (right).

8. The individual professional status measure is based on the following question (Q.33):

> Have you held any of the following positions, memberships, or honors?
>
> 1. An office in your discipline's major professional association.
> 2. An office in a regional or specialized professional association.
> 3. An editor, advisory editor, or associate editor of a professional journal.
> 4. An award for distinguished teaching.

5. An award for outstanding research or a published work.
6. Membership in a scholarly honorary society (not including memberships obtained while an undergraduate or graduate student).
7. Review and evaluation of an academic program at another institution.
8. Delivery of a major guest lecture at another institution.
9. Non-federal fellowship (e.g. Guggenheim, SSRC, Center for Advanced Study in the Behavioral Sciences).
10. Other

The measure consists of a simple summation of the number of items checked by the social scientist, excluding "an award for distinguished teaching" and "other." The distribution of social scientists on this measure is as follows.

Individual Professional Status Measure
(Percentage distribution)

Number of positions and honors	Discipline			
	Anthropology	Economics	Pol. Sci.	Psychology
0	18.8%	29.4%	38.1%	28.7%
1	16.2	22.2	21.8	24.8
2	22.2	20.8	15.9	17.2
3	16.5	14.0	10.7	11.9
4 or more	26.3	13.6	13.5	17.9
(number of cases)	(266)	(221)	(289)	(303)

9. Fewer than 3 percent of the nation's academic social scientists were members of a racial minority, according to the 1969 National Faculty Survey. Information on race was not obtained in the present study. The representation of women in the present study is as follows: 20.3 percent in anthropology, 3.6 percent in economics, 5.9 percent in political science, and 17.8 in psychology.

10. Scholarly books and monographs are assigned a weight of 5, articles in scholarly journals and chapters in books are given a weight of 1, and textbooks and edited books are given no weight (Q. 34). Publication rate means and standard deviations are as follows:

Publication Rate

Publication rate	Discipline			
	Anthropology	Economics	Pol. Sci.	Psychology
Mean	2.30	1.62	1.52	1.74
Standard Deviation	2.29	2.48	2.34	1.72
(Number of cases)	(264)	(217)	(285)	(299)

11. These and all subsequent figures, unless otherwise indicated, are based on all respondents, including those who report they have not been involved in research over the past five years ("Over the past five years have you engaged in any research or scholarly writing?" [Q. 9]). The proportions indicating no recent research activity are 2.3, 15.7, 8.0, 12.7 percent for anthropology, economics, political science, and psychology, respectively. The non-researchers have been included in the analyses on the assumption that at least a major fraction would have been conducting research over the past five years had they not lacked access in the past to crucial research resources, including financial support.

12. The correlations between the fraction of the annual research expenditure that is contributed by federal sources and the log of

the total expenditures are .46, .50, .53, and .72 for anthropology, economics, political science, and psychology, respectively.

13. In this and in following analyses, log transforms of publication rate and amount of federal support are used because of the substantial skewness in both distributions. The symbols P and A will refer to log transforms of publication rate and amount of federal support, respectively.

14. The squared multiple correlation coefficients are as follows: anthropology, $R_F^2 = .106$, $R_A^2 = .266$; economics, $R_F^2 = .191$, $R_A^2 = .253$; political science, $R_F^2 = .085$, $R_A^2 = .148$; psychology, $R_F^2 = .265$, $R_A^2 = .388$.

15. Means, standard deviations, and simple correlations among the funding principle dimensions and amount of total funds for economics, political science, and psychology are as follows.

Means, Standard Deviations, and Simple Correlation Matrix of Variables, Economics, Political Science, and Psychology

	Mean	SD	Simple correlations						
			R	L	D	I	S	P	A
Economics									
C) Citation rate	0.539	1.014	.215	.025	.263	.308	---	.326	.278
R) Policy relevance	0.377	0.486		.151	.134	.110	---	.348	.396
L) Political perspective	4.039	1.220			-.020	.096	---	.190	.158
D) Department prof. status	0.225	0.549				.074	---	.133	.113
I) Individual prof. status	1.607	1.406						.326	.253
P) Publication rate (log)	0.306	0.260							.371
A) Amount of federal funds (log)	0.377	0.486							
(number of cases=191)									
Political Science									
C) Citation rate	0.628	1.031	.123	.068	.385	.292	---	.232	.164
R) Policy relevance	0.356	0.480		.010	.073	.176	---	.324	.292
L) Political perspective	3.426	1.085			.073	-.029	---	-.017	.092
D) Department prof. status	0.296	0.653				.321	---	.232	.143
I) Individual prof. status	1.392	1.436						.176	.156
P) Publication rate (log)	0.285	0.264							.297
A) Amount of federal funds (log)	0.401	0.661							
(number of cases=250)									

Psychology

C) Citation rate	1.263	1.300	.125	.101	.314	.368	.158	.584	.497
R) Policy relevance	0.150	0.358		-.015	.127	.282	.039	.169	.334
L) Political perspective	3.586	0.979			.105	.077	-.109	.145	.127
D) Department prof. status	0.567	0.808				.202	.011	.382	.319
I) Individual prof. status	1.680	1.442					.161	.475	.365
S) Sex	0.170	0.376						.149	.086
P) Publication rate (log)	0.357	0.251							.497
A) Amount of federal funds (log)	0.796	0.983							

(number of cases=247)

Section IV

EFFECTS OF FEDERAL RESEARCH SUPPORT

The state does not arbitrarily allocate its research budget among faculty investigators. Definite patterns characterize the transfer of funds, and these patterns reflect state objectives in backing social science research. The consequences for the social science disciplines may well be significant, for as we have seen, the federal government is the dominant source of research funds in academic institutions. By one estimate 40 percent of all funds spent on social research in colleges and universities during fiscal 1970 came from the federal government (National Science Foundation, 1972b:46,83). According to my and other surveys, from a quarter to a third or more of the members of the major social science disciplines are supported by federal grants and contracts at any given time. With social scientists so heavily dependent on the federal government for the conduct of their research, the manner in which the government distributes its resources may have significant ramifications within the disciplines. The specific consequences will, of course, be a function of the precise patterns of state support. Although the state may be in a better position to utilize the social sciences as a result of these ramifications, not all effects are necessarily intended, and in fact some of the unintended consequences may well be counterproductive from the state's point of view.

Whatever the consequences for the state, federal involvement in the production of social knowledge is likely to leave a significant mark on the disciplines themselves. Evidence presented in the previous section suggests that the state's primary aims in supporting academic social research are at least two-fold: to foster social research for social science, and to generate information for state planning and programs. Other than reinforcing the status quo, the first objective should leave the social science disciplines relatively unaffected. Federal research resources are distributed according to principles little different than those the social science community itself would utilize. The second objective of acquiring policy relevant information, however, should result in significant paradigmatic change, especially, if the federal involvement is substantial and prolonged. State investment in social research would be determined by state needs, and these requirements are unlikely to be identical with the discipline's own definition of its research priorities. Although obsured in various guises, in time these political considerations should acquire an influential presence in the disciplinary paradigm.

The concept of the scientific paradigm will be more broadly defined here than in the work of Kuhn (1970) and others who have used or extended the concept (e.g. Friedrichs, 1970; Lodahl and Gordon, 1972; Kuklick, 1973). The paradigm is generally taken to be a set of understandings shared by members of a discipline that define the discipline's state of knowledge, its accepted theories and methodologies of research, and its priority areas for further empirical and theoretical work. While allowing that he has used the concept of the paradigm in different ways in the

original presentation (1962), Kuhn maintains that its core "sociological" meaning is its representation of "the entire constellation of beliefs, values, techniques, and so on shared by the members of a given community" (1970:175)[1]. This specification partially overlaps with what Parsons characterizes as the values and norms of science (1951:Ch.8) and Gouldner terms the "domain assumptions" of sociologists (1970:31ff.), although the latter concepts are defined in a more abstract, less substantively specific manner than is Kuhn's paradigm.

In my view, this specification of disciplinary paradigm, at least when applied to the social sciences, is too limited. In addition to shared beliefs and values regarding the field's theory and research, two other components will be included in the definition of the disciplinary paradigm used here. One element is the social organization of the discipline, including informal communication and influence networks, stratification and social control systems, and the structure of academic employment. The second element is the set of beliefs and values shared among disciplinary members concerning their individual and collective relationship with other institutions in the society. Included here is specification of how the social science discipline does and should interact and exchange resources with outside institutions, such as the government. The disciplinary paradigm, then, is taken to be comprised of three components: (1) values and beliefs regarding theory and research, (2) social organization, and (3) values and beliefs regarding relations with other institutions. The inclusion of the latter two elements in the

concept of the scientific paradigm is not simply semantic, for there are important analytic implications. The traditionally separate treatment of the three aspects has often led to the relegation of the second component to a dependent status and to the exclusion of the third component from any consideration. This can be seen in both Kuhn's and Friedrichs' analyses, where a nearly exclusive focus on the internal intellectual development of scientific disciplines implicitly assigns a determining role to the intellectual element and a dependent role to other factors. Disciplinary social organization is presumed to follow from a given state of theory and research in the discipline and to have insignificant feedback on the field's research priorities, in much the same way that societal institutions, such as social stratification and the political system, are a logical product of the society's value system in the structural-functonalism of Parsons and others. The unification here of three distinct aspects of social science under the rubric of disciplinary paradigm is aimed at leaving their mutual influence an open question rather than one that is foreclosed by conceptual fiat.

Identification of the factors that shape and determine a discipline's paradigm is of course a critical issue. Sociologists have generally focused on the role of internal factors, either explicitly or implicitly on the assumption that external factors, such as political climate or economic demands, play a comparatively minor if not negligible role. Storer, for instance, subtly makes such a presupposition at the outset of his analysis of science as a social system: "[Science] does, to be sure, engage in quite complicated relationships with other parts of society, but my concern here is to analyze the nature of science itself

rather than its place in the larger society" (1966:4). Similarly, Hagstrom begins his study of social control of scientific research with the unargued assertion that in basic research in sciences with well-developed theories, political and other external factors are largely irrelevant since"the scientific community is relatively autonomous, and the group of colleagues is the most important source of social influence on research" (1965:1). A number of empirical studies arrive at conclusions apparently supportive of such assumptions. Surveying historical and sociological materials on the rise of modern science in several national systems, Ben-David (1971), for instance, concludes that the major if not decisive determinant of the rate and quality of national scientific activity is the presence of competion among decentralized but strongly organized research units. Similarly, Cole and Cole (1973), on the basis of their intensive investigation of the stratification system in physics, find that the reward structure is closely geared to the advancement of the discipline, and, by implication, unrelated to non-scientific criteria. In one of the few studies to have explicitly examined the potential influence of external factors on the stratification system in science, Blume and Sinclair (1973) find that the outside element (in this case private industry) had little impact on the structure of prestige and recognition among British academic chemists. A reading of this literature encourages the expectation that federal support for social research has little effect on the disciplinary paradigms in the social sciences, whatever the scale and particular structure of state financing.

Other studies, often more historically oriented, more critical of the social sciences, or written by non-sociologists, would suggest that by contrast, the social science paradigm is strongly influenced by external institutions, particularly political and economic systems (e.g. Bernal, 1971; Merton, 1971: Oberschall, 1972; Blackburn, 1973; Blume,1974; Schwendinger and Schwendinger, 1974). Blume, for instance, takes the view that "social, political, and economic conditions (particularly the latter) serve largely to determine the structure of scientific organizations in any country...."(1974:15). More specifically, for Bernal this has meant the dominance of capitalist economic institutions over both science and social science:

> In one way or another, directly or through government agencies, science in the capitalist sector of the world has come under the control of the small number of big monopoly firms. In the United States, the universities are already in their hands; their representatives sit on governing bodies; they provide the funds or arrange government grants; they give employment to the graduates; they can make or break leading scientists; their influence is predominant in the scientific societies.... (1971:1254).

Focused investigations have repeatedly demonstrated that external factors have at least some influence on social science paradigms, whether it be the class background of social scientists (Mills, 1943;Sherwood and Nataupsky,1968), the social organization of the employing institution (Rosengren, 1961), or federal policies (McCartney 1970,1971; Galliher and McCartney, 1973). This "externalist" literature points to an expectation that is the reverse of the

"internalist" expectation; namely, that federal support for social research has major impact on the social science paradigm.

These contradictory views on the influence of the state on social science can be expressed in a simple null hypothesis: State support for social research has no significant influence on the social science paradigm. Three subsidiary hypotheses are implied by the definition of paradigm employed here: State support for social research has no effect on a discipline's (1) values and beliefs regarding theory and research, (2) social organization, and (3) values and beliefs regarding relations with other institutions. This section successively examines each of these propositions. Only selective empirical examination is undertaken, with some but not all major aspects of each paradigm component examined.

Values and Beliefs on Theory and Research

If government research policies are without significant influence on the course of social research, the social scientist's choice of a research topic and methodological procedure should be relatively independent of the structure of federal financial support. The topic and method selected by the individual is presumably heavily determined by the discipline's internal definition of priority issues and appropriate techniques, but the choice should not be shaped by the differential availability of federal funds for specific areas and approaches. Since the years immediately preceeding this study were ones of moderate decline in federal support for social research (adjusted for inflation) as well as some major shifts in federal priorities (diminishing the level of financing of some areas faster than the overall decline), I have chosen to focus on the impact of the loss of state support. The null hypothesis for this component of the paradigm is: Reduction in federal financial support for social research has no significant impact on the scale or method of the social scientist's research.

Impressionistic evidence suggests that this null hypothesis is false in at least some instances. This is apparent in the area of race relations research during the 1950s. A number of social scientists openly complained of the void in federal funds for studies of desegretation and other race related topics (e.g. Cook, 1957; Pettigrew, 1961; Rossi, 1964a,1964b). In the context of support for other areas, one psychologist took note of the insidious consequences the lack of research money had on his colleagues concerned with race relations:

> [M]ost researchers who are potentially competent and able to do significant research in intergroup relations are caught in the following trap. They have to produce, but to do so they need the opportunity. Their self-esteem is tied to how well their research compares with that of those they identify as peers. Since most good research demands the command of monetary resources, they tend to work on projects for which they can get financial support.... Given these pressures, it is possible to understand why they tend to do research on topics for which they can get grants, rather than in [intergroup relations]....Students who begin working with a particular professor find themselves caught up in the research [he is] doing.... The net effect of this is to draw the more able students away from the field of intergroup relations, since the professors find it difficult to find sponsorship for such research (Christie,1964).

Data compiled by Simpson (1961) and McCartney (1970,1971) indicates that indeed this period was marked by a declining level of sociological concern with race (as measured by trends in the number of race related articles published and the number of sociologists identifying race as a primary field of interest).

The political sensitivity of race during the 1950s, the absence of federal research support, and the consequent atrophy of academic research on the topic may be unique, and it remains to be demonstrated that the process occurs more generally. If it does happen, it may occur at one or both of two levels. At the individual level, the researcher may respond to specific experiences of his or her own in securing or failing to secure

federal backing. At the aggregate level, the researcher may respond to information about general trends in government funding gleaned from official announcements, college grant offices,and professional gossip. In their negative form, our expectations at these two level are that a) failure to obtain requested federal support has no effect on the individual's research priorities, and that b) reduction of overall federal social research funds has no influence on the individual's research priorities. For lack of more adequate measures, the self-reported reactions of social scientists to financial setbacks are utilized.

Two questions tapped the consequences of the individual federal funding failure. One inquired of those who had unsuccessfully applied for a federal grant or contract over the past five years what became of the proposed research: the other asked those who had successfully applied for a federal grant or contract over the same period what would have happened to their proposal (or their largest proposal if more than one) if the support had not been forthcoming. In both instances, only one-sixth of those with such experiences report that their research plans were or would have been unaltered (Table 4.1). Approximately one-third indicate that the project was or would have been executed on a reduced scale or in a substantially different form. And nearly half assert that their research plans have not or would not have been carried out in any form. These proportions vary little by discipline. If we consider the number of social scientists whose plans were cancelled upon grant rejection in relation to the full membership of each discipline, over the past five years nearly a fifth of the social scientists of each

Table 4.1

Disposition of Research Plans upon Failure to Receive Requested Federal Financial Support

Disposition of Research Plans	Discipline			
	Anthropology	Economics	Political Science	Psychology
Plans after a proposal was rejected by a federal agency [a]				
Unaltered	15.5%	8.0%	11.5%	18.3%
Reduced in scale	22.5	32.0	27.9	38.7
Dropped	52.1	50.0	54.1	40.9
Other	9.9	10.0	6.6	2.2
(number of cases)	(71)	(50)	(61)	(93)
Plans on the assumption that a successful proposal had not received federal funding [b]				
Unaltered	18.1%	13.1%	11.4%	9.2%
Reduced or altered in form	41.3	37.8	38.6	49.6
Dropped	40.6	47.5	47.7	40.3
Other	0	1.6	2.3	1.0
(number of cases)	(138)	(61)	(88)	(119)

[a]The question: "Over the past five years, have any new or renewal application of yours for federal research funds been turned down? If approved but not funded or yes, what eventually became of the original proposal (if more than one, consider the proposal that was most important to you)?" (Q.15) Coded as plans "unaltered" were the following responses: "Funded by same source after changes

Table 4.1 (continued)

and resubmission;" "Funded by another source near the original level requested;" "No support obtained but original plan undertaken anyway." Coded as plans "reduced in scale" were these responses: "Funded by another source at a substantially reduced level;" "No support obtained but a reduced version of the plan carried out." Coded as plans "dropped" was the response: "Proposed research has not been carried out."

[b]The question: "Consider for a moment your largest federal research grant or contract over the past five years.... Would you have pursued the study supported by this grant or contract even if the federal backing had been unavailable?" (Q.14) Coded as plans "unaltered" were the following responses: "Yes, other support would have been available;" "Yes, even without other support." Coded as plans "reduced or altered in form" were these responses: "Yes, but on a reduced scale;" "Yes, but in a substantially different form." Coded as plans "dropped" was the response: "No."

discipline had abandoned a research topic to which they were committed--for lack of state support. The original commitment to the proposal was clearly substantial, for considerable time had been necessary to develop a grant proposal suitable for submission to a federal agency.

Regardless of such personal experiences in securing state support in the early 1970s, most social researchers sensed that after a decade of unprecedented growth, overall federal backing was not only leveling off but even perhaps declining. Indeed, when corrected for inflation, federal expenditures for basic social research in colleges and universities show a decline after 1968: total investment increased from $56 million in 1964 to $96 million in 1968, but in 1970 state commitment dropped to $87 million (National Science Board, 1973:119). The reordering of federal priorities led to even sharper losses in some areas of research. The social science research budget of the Office of Economic Opportunity, for instance, stood at $29 million in 1970, rose to $63 million in 1971, but vanished altogether in 1974 (National Science Foundation, 1971a:106;1972a:75; 1974a:A26, 28,30).

Contrary to the null expectation, majorities of the social scientists in all disciplines except economics report some actual or anticipated impact of the federal cutbacks (Table 4.2). Substantial proportions in all fields indicate that coping actions have involved or may involve a change in substantive focus, use of thriftier methods, reduction in project scale, a more applied orientation, or the search for new funding sources.

Table 4.2

Proportions Reporting Actual or Anticipated Changes in Research Plans as a Result of Changing Federal Support for Social Research

Reported Change [a]	Discipline			
	Anthropology	Economics	Political Science	Psychology
Area change	17.3%	12.7%	15.3%	17.2%
Cheaper methods	20.1%	10.8%	17.6%	26.1%
Scale reduction	36.5%	27.0%	25.3%	38.8%
More applied	14.9%	8.8%	13.4%	14.8%
New funding sources sought	43.4%	21.6%	28.7%	33.3%
No effect	30.9%	55.9%	43.3%	37.1%
(number of cases)	(249)	(204)	(261)	(291)

[a]The question: "Have the recent shifts in and leveling off of federal support for social science research over the last year or two had any effect on your research plans?" Response categories corresponding to the reported effects as ordered in the table are as follows: "Research area has been or may be changed;" "Less costly research methods have been or may be used;" "Research scale has been or may be reduced;" "More emphasis has been or may be placed on the potential for applications of your research;" "New sources of funding have been or may be explored;" "No effect." (Q.16)

However, not all social scientists are likely to be equally affected by these changes in state policies. It can be reasoned that classes of social scientists that have traditionally received the most federal support should be the most prone to take compensatory steps. More specifically, on the basis of the previous section's discussion, it can be expected that social scientists engaged in leading areas of research, as defined by the discipline, or engaged in topics of use to the state, should be most sensitive to the trends of recent years. Also, highly productive social researchers should be especially prone to react to the federal cutbacks. This group sensitivity argument views the process of external influence on social research as one in which groups of social scientists collectively react according to the decline of their group's financial fortunes.

Another argument views the process as less diffuse and more heavily determined by the individual researcher's financial circumstances. This individual dependency expectation is based on the assumption that the individual researcher primarily responds to the extent that his or her own research livelihood is directly affected. If this is the dominant process of influence, it can be expected that social scientists whose research has required or attracted federal backing should be most sensitive to the federal cutbacks and priority changes.

Measures of a person's group sensitivity are three indicies developed in the previous section: citation rate, policy relevance, and publication rate (log).

These three were shown to be the principle dimensions structuring the distribution of federal grants; state support is highly skewed in favor of those who are highly cited, working on research useful to the state, and highly productive. Measures of individual dependency are two: log of the amount of the largest federal research grant or contract over the past five years, and an index representing the use of costly research procedures over the past five years, labeled research expenses. The latter measure consists of a sum of the number of costly research procedures utilized, including such items as travel, extensive interviewing, maintenance of a substantial research staff, and computer usage.[2] It can be reasoned that social researchers employing expensive techniques should more acutely feel the effects of federal cutbacks than those whose costs are minimal.

As a measure of change in research plans resulting from altered federal research policies, responses to the question on the effects of the federal cutbacks (Q.16) are dichotomized into no impact versus one or more changes. Simple correlations of the three groups sensitivity and two individual dependency measures with this research change variable are shown in Table 4.3, along with the beta coefficients from a regression of research change on the five predictors. The group sensitivity measures are positively associated with research change, a pattern consistent with the thesis that social researchers respond to federal policy changes according to the perceived likelihood that researchers in their general situation are being adversely affected. However, it is also clear that the individual dependency measures much more powerfully predict

Table 4.3

Association between Research Changes, Group Sensitivity, and Individual Dependency

Independent variables (Dependent variable: research changes)	Discipline							
	Anthropology		Economics		Political Science		Psychology	
	r	β	r	β	r	β	r	β
Group sensitivity								
Citation rate	-.006	-.024	.071	-.020	.118	.023	.247	-.075
Policy relevance	.085	.066	.282	.091	.182	.017	.124	-.036
Publication rate (log)	.096	.077	.197	-.086	.293	.105	.401	.244
Individual dependency								
Amount of federal funding (log)	.040	-.032	.433	.289	.348	.162	.330	.075
Research expenses	.107	.090	.438	.317	.430	.301	.457	.339
(number of cases)	(216)		(178)		(229)		(247)	

changes in research plans. Except in anthropology, zero-order associations for the group sensitivity factors are nearly entirely below .3, while the individual dependency associations all exceed .3. Moreover, the group measures are all strongly correlated with the individual dependency measures.[3] Thus, it is likely that the zero-order associations between the contextual factors and research change are in large part a spurious product of their association with the individual dependency measures. With a few exceptions, the beta weights in Table 4.3 indicate that this is the case. While the beta coefficients for individual dependency measures are generally substantial, most of the contextual sensitivity associations shrink to insignificance. None of these relations appear in anthropology, where changes in research plans appears largely unrelated to either set of factors. It is not known why neither influence process is operative in this discipline. In the other disciplines, however, the impact is felt, and it is primarily mediated through the individual's dependence on external funding rather than his or her group's relation with the state.

Overall the evidence indicates that social scientists often shape their research plans at least partially in response to the availability of federal government funding. Research proposals that are not funded are generally not pursued, and, even if the research is later undertaken, the scale is usually substantially reduced. The dominance of the federal government in the research financing market means that individual reactions are not isolated occurrences, but are systematically repeated by many social scientists.

Approximately a third of the members of each field report that a federal grant or contract proposal they had submitted over the past five years had been turned down, and about a half of the members of each discipline indicate that recent federal cutbacks and priority changes have resulted in alterations in their own plans. Moreover, if it can be assumed that federal agency decisions in rejecting proposals or reducing overall research support are not taken arbitrarily but are consistent with general state purposes in funding social research, over time state interests should come to have a significant influence on the types of methodologies employed, topics pursued, and theories tested and developed. In short, through the structuring of its research grants and contracts, the state appears to be significantly shaping one component of the social science discipline--its values and beliefs regarding theory and research. The evidence also indicates that the influence process is primarily that of individual social scientists responding to the research finance market according to their immediate requirements for external support. Since that market is monopolized by the federal government, the social scientist in need of backing has little choice but to accommodate his or her research plans to the priorities of the state. Though partially overlapping with those of the social science discipline, state priorities are clearly not identical with those the discipline would set itself. Thus, scientific choice in the social sciences is partially determined by the state.

Social Organization

If government policies are without significant influence on the disciplinary paradigm, the social organization of the discipline should be unaffected by the structure of federal financing of research activities. The allocation of resources, prestige, and rewards among the members of a discipline should be a product of internal considerations and not a matter of state preferences. Decisions taken by professional associations, scholarly journals, and academic departments ought to be free of state related criteria. One of these decisions has been selected for analysis here--the appointment and promotion of faculty members in social science departments. This decision is of course of fundamental importance to both the department and the individual under consideration. For the department, the personnel decision is perhaps the single most important factor in defining the quality and orientation of its teaching, the character of its scholarly work, and its professional reputation. For the individual, the personnel decision has central bearing on his or her area of residence, teaching conditions, research opportunities, and salary. During a period of over-supply in social scientists, it may even be the determinant of whether one is employed at all. The resources at stake are more substantial than in most other decisions affecting social scientists. If the state is to have a serious impact on the social organization of a discipline, its influence should be manifest in departmental personnel decisions. The corresponding null hypothesis is this: the social scientist's success in being hired, promoted, retained, and tenured is independent of his or her success in obtaining

federal research support.

To judge by the observations of these close to or part of the hiring and promotion process in academic department, external research support does have a major bearing on the decision. One observer even concludes that outside backing has nearly become a necessary condition for advancement in some fields:

> [R]esearch grants have become one important part of the process of evaluating university faculty for raises and promotions. In some fields of science, he who cannot raise outside research money may be considered a poor prospect for permanent tenure because (it seems) he is not well regarded by his colleagues in his discipline. This creates an added pressure to engage in...the kinds of research currently favored in granting agencies... (Hall, 1972:220).

Similarly, majorities of those I directly interviewed in all four disciplines indicated that a federal grant was generally considered a distinct asset for a person under tenure review. The chairman of a psychology department made it clear that external support helps, though more so in the past than presently because of the decline in federal money:

> Q. Is a young person of your department likely to have his or her chances for tenure and promotion increased if a large federal grant is received?
>
> A. Yes. It doesn't have to be large...I think the question of outside review is the important point of receiving a grant, and not the grant itself. There has been a review of

> the proposed research by peers, and they have thought it worthy to be supported.... In the past, when grants were fairly easy to come by, for competent researchers at least, I would never have supported anyone for promotion who didn't at some point or other receive outside support for his research. In fact, at (another university) where I was for a number of years, if you didn't apply for a grant almost immediately and get some support, people thought you were kind of weird. (psychology professor; case 809).

Those I interviewed generally stressed one or more of the following reasons for the higher regard accorded colleagues with federal grants: holding federal support brings needed money into the department for graduate support and faculty salaries, is an indication that significant research is being undertaken and publications will ensue, and is itself a measure of the high regard the grant review committee members hold for the individual and his or her research plans.

A 1961 survey by Orlans of over 900 social scientists at 36 colleges and universities indicates that high esteem for the grant recipient is widespread in academic culture. Respondents were asked to compare the relative standing of two members of their department--one with an external grant, the other without--assuming they had equal teaching and research abilities. Nearly half felt the grant holder would be more esteemed by his colleagues than the person without support, and well over half indicated that the college administration would view it the same way. Virtually none

of the respondents believed that either the department or administration would rank the grant recipient below the faculty member who lacked support (Orlans, 1962:202). However, contrary evidence comes from a study of sociology departments in the early 1970's by Javetz (1972). When the sociologists were asked to identify the three major considerations for promotion and retention of faculty members in their own department, holding an outside grant was virtually never mentioned. This difference cannot be explained by the elite character of the Javetz sample, since the Orlans survey found comparable levels of support for the grant recipient over the unfunded colleague at both elite and non-elite institutions.

The influence of the state on academic departmental employment decisions, if it is significant, can be expected to appear in two major complementary forms. First, there should be general acceptance of the belief that a federal grant reflects well on its recipient and that it is appropriate to consider this during decisions on hiring and promotion. Second, in the course of actual decisions, grant holders should be favored over those without grants in hiring and promotion, other factors being equal.

The extent to which academic culture accords special esteem to the social scientist holding a federal research grant was assessed by three questions in the survey. One question asked respondents to evaluate the validity of four possible reasons for the heavy concentration of federal research funds "at a few well-known institutions." One of the interpretations asserted that the skewed distribution "reflects the advantage those with

federal grants and contracts have in acquiring a position at a well-known school." Over two-thirds of the members of each of the four disciplines indicated that they agreed or strongly agreed with this interpretation (ranging from 69.9 percent in anthropology to 75.1 percent in psychology). A second question requested an evaluation of importance in their department of five factors in the reappointment, promotion, or tenure of a person five to ten years beyond the Ph.D degree. The third question asked respondents to indicate the importance they themselves would attach to the same five factors: quality of scholarly publications, quantity of scholarly publications, teaching ability, advisory work with the federal government, and receipt of federal research support. Table 4.4 reports the mean ratings of the importance of each factor; the range is from "high value" (1) to "no value" (3) and "negative value" (4). The ratings are relatively uniform across the four disciplines. The social scientists would personally place heaviest stress on teaching and quality of publications, followed by quantity of publications, and then by receipt of federal research support. Consulting with the federal government is not held in high esteem. However, current departmental practices are perceived as operating quite differently. Quality and quantity of publications, teaching quality, and receipt of federal support are all ascribed comparable significance (federal consulting activity still counts for little). Few departments place no value or a negative value on receiving federal

Table 4.4

Mean Perceived Importance of Receipt of Federal Research Support and other Factors in Faculty Promotion Decisions[a]

Factors in promotion[a]	Discipline			
	Anthropology	Economics	Political Science	Psychology
Department evaluation				
Quality of publications	1.59	1.57	1.66	1.61
Quantity of publications	1.61	1.64	1.75	1.63
Teaching ability	1.83	1.68	1.80	1.85
Receipt of federal grant	1.69	2.07	1.94	1.72
Federal advisory work	2.45	2.42	2.46	2.39
Personal evaluation				
Quality of publications	1.20	1.43	1.36	1.38
Quantity of publications	1.99	1.93	2.03	2.01
Teaching ability	1.33	1.29	1.27	1.29
Receipt of federal grant	2.19	2.77	2.29	2.15
Federal advisory work	2.54	2.28	2.40	2.36
(number of cases)	(242-256)	(213-219)	(269-284)	(293-295)

[a] The question: "For a person five to ten years beyond a Ph.D degree, how important are the following factors in his or her reappointment, promotion, and tenure in your department, institute, or center? How important do you personally feel these factors ought to be? Publication of many scholarly papers and books; publication of high quality scholarly papers and books: distinguished teaching; consulting for or advisory work with the federal government: receipt of a large federal grant or contract." Each factor was assessed on a four-point scale: "high value" (1), "some value" (2), "no value" (3), and "negative value" (4). (Q. 21)

research support. The proportions reporting such a policy range from 13 percent in psychology to 29 percent in economics.

Social scientists generally indicate that they would give less credit to obtaining a federal grant than is current practice within their own department. This suggests that the source of such a practice is not simply the aggregation of the personal preferences of the faculty themselves, but also involves external pressures from the college or university administration. But whatever the source, there is general acceptance of the principle that success in federal grant applications should reflect favorably on the investigator during a promotion decision. One third or fewer of the members of each discipline indicate that they would prefer that no value be given the federal grant dimension when a colleague is under review (the proportion ranges from 23 percent psychology to 36 percent in economics).

With a positive view of receiving state support so widespread, it can be expected that promotion patterns should significantly reflect this consideration. To examine the question, analysis is limited to those social scientists in a career phase when crucial promotion decisions most often occur. This begins a few years after the social scientist takes his or her first job and closes once a tenured professorial rank is obtained, usually within a decade. Accordingly, only social scientists who had received their highest academic degree between 1963 and 1970 are included in the following analysis.

Two measures of individual promotion are used: tenure (dichotomized) and academic rank (trichotomized into instructor and assistant professor, associate professor, and professor). The measure for success in obtaining federal research backing is the familiar variable, amount of federal funds (log) (representing the dollar amount of the largest federal grant or contract over the previous five years, scored as zero if there had been no support). The simple correlations between amount of federal funds and the two promotion measures are consistently positive though moderate in magnitude (Table 4.5). However, these associations are potentially spurious. Other research has shown that such factors as quality of publications, quantity of publications, and status of the department from which the doctorate was received, have a significant bearing on employment opportunities in academe (Hargens and Hagstrom, 1967; Crane, 1970; Blume and Sinclair, 1973; Cole and Cole, 1973; Gaston, 1973; Siegfried and White, 1973). Responses to the previously discussed questions on department criteria in promotion also indicate that both publication dimensions as well as teaching should play a major role in promotion. Since quality and quantity of publications are associated with receiving a federal grant or contract, the association of the latter with promotion success may be an artifact of the association between publications and promotion. The following measures are used for quality of publications, quantity of publications, and professional reputation of the highest degree department, respectively: citation rate, publication rate (log), and highest degree department professional

Table 4.5

Academic Rank and Tenure Association with Receipt of Federal Research Support, for Social Scientists Who Received Their Highest Degree in 1963-1970

	Discipline							
	Anthropology		Economics		Political Science		Psychology	
	Rank	Tenure	Rank	Tenure	Rank	Tenure	Rank	Tenure
Amount of federal funds (log)								
Simple correlation	.155	.064	.012	.034	.246	.238	.121	.134
Standardized regression coefficient, controlling for quality and quantity of publications, and professional status of highest degree department	.021	-.009	-.084	-.015	.103	.162	.067	.152
(Number of cases)	(122)	(117)	(87)	(83)	(133)	(131)	(144)	(137)

status as evaluated by Cartter (1966) and Roose and Anderson (1970).[4] A measure for teaching effectiveness could not be devised.

When tenure and academic rank are regressed on the four potential promotion considerations, the associations between promotion and federal funding largely remain in political science and psychology but vanish in anthropology and economics (Table 4.5). Even in political science and psychology, the controlled relationships are of modest value. It is always possible that stronger associations could appear if more refined measures of promotion, such as salary, were available and if a larger sample were taken so that a narrower career range could be examined. But the present findings indicate that despite the widespread acceptance of evaluative criteria favorable to those with state backing, federal research support does not have a major bearing on who is promoted in academe, although there is some variability between disciplines. Numerous individual instances can be cited in which individuals received a more favorable departmental review because of their ability to command federal money, and many I interviewed described occurrences in their own departments. Yet such outcomes are not sufficiently common for a strong federal grant bias to emerge.

Though it is widely believed that the state influences the employment opportunities of social scientists in higher education, an expected consequence could not be confirmed. Overall federal support for the social sciences may well be a major determiant of the number of social scientists employed in academe,[5] but during promotion reviews departments apparently do not generally discriminate in favor of members who hold federal support. If there is federal impact on the internal social organization of the social science descipline, it is not transmitted via the

academic departmental personnel decisions.

Values and Beliefs on Relations with the Federal Government

Members of any institution are likely to develop beliefs about and attitudes toward another institution with which there is significant and sustained interaction. The scale and scope of federal support for academic social research ensures that social scientists are likely to have well elaborated understandings of, and perspectives on, the national government. Prior surveys of academic social scientists indicate that their views are well developed and are generally very favorable toward the state's role in supporting research. In Orlans' survey of college and university faculty in 1961, for instance, social scientists were asked whether the concentration of federal research and training funds in a "few well-known universities" was "fundamentally a reflection of the present distribution of faculty talent." Strong majorities believed that the government allocation did follow lines of talent, and approximately half felt it was in the "present national interest" as well (1962:171). Similar views are equally prevalent a decade later, as revealed in the 1969 National Faculty Survey. Respondents were asked whether the concentration of federal and foundation research support in the "big institutions" helped the "advancement of knowledge". Over three-fourths of the members of all five major social science disciplines (including sociology) asserted that the advance of knowledge was served (Table 4.6). By contrast, only minorities in all disciplines felt that the concentration of external support was corrupting of the individual and institutional recipients. Thus, the principle of federal involvement and the manner of actual involvement in academic social research appear widely accepted.

Table 4.6

Views of the Existing Distribution of Federal and Foundation Research Support among Academic Institutions, 1969 National Faculty Survey

	Discipline				
	Anthropology	Economics	Political Science	Psychology	Sociology
"The concentration of federal and foundation research grants in the big institutions... [Percentage agreeing][a]					
1) contributes substantially to the advancement of knowledge.	82.0%	82.0%	78.9%	84.2%	81.2%
2) is corrupting to the institutions and men that get them."	42.6%	37.2%	45.0%	44.8%	43.2%

[a]Percentages are based on weighted cases. The numbers of cases for anthropology, economics, political science, psychology, and sociology are 490, 1,553, 1,286, 2,313, and 1,042, respectively. Response categories are strongly agree, agree with reservations, disagree with reservations, and strongly disagree. Proportions agreeing include those who selected strongly agree or agree with reservations.

It would be no surprise if my study revealed comparable levels of backing for government financing of social research, and indeed this is the case. Respondents were asked what was the appropriate degree of federal involvement in setting future research priorities, and what aspects of social knowledge the government should support (production, distribution, and use of social knowledge, and the training of new social scientists). Overwhelming majorities in all disciplines saw at least some positive role for the government in determining social research directions, and nearly half of those surveyed would prefer to see the role be one of equal collaboration with the social sicences (Table 4.7). Similarly, approximately three-quarters of the members of each discipline agreed that the state should financially support the production, dissemination, and application of social knowledge. Even more striking is widespread acceptance of the belief that the government should allocate its resources not only according to the priorities of the discipline but also according to government priorities. Members of the four disciplines were nearly unanimous in agreeing that federal agency "interests" and "national needs" should play at least some role in the allocation of federal research money (Table 4.7).

It is apparent that social scientists generally endorse the principle of heavy state involvement in social research support. Actual state policies in recent years in this domain appear to meet with widespread approval as well. At least two sources may be responsible for these views. One is state legitimacy. Values

Table 4.7

Views of the Federal Role in Supporting Academic Social Research

View	Discipline			
	Anthropology	Economics	Political Science	Psychology
"The pursuit of social knowledge in your field [over the next decade] would be most effective if the federal government.... (circle one)				
1. Has no say in setting research priorities	21.0%	10.6%	17.3%	8.2%
2. Plays a minor role in establishing research directions.	32.1	32.1	40.6	41.1
3. Works in collaboration with your discipline to set research priorities.	46.6	52.6	41.3	50.0
4. Takes a central role in planning research directions." (Q.25)	0.4	2.8	0.7	0.7
(Number of cases)	(252)	(215)	(283)	(292)
"Should the national government be heavily involved in financially supporting any of the following areas: [percentage backing involvement]				
Producing social science knowledge	74.3%	66.2%	72.4	83.9%
Facilitating the distribution of social science knowledge	73.5%	70.3%	72.0%	79.6%
Using social science knowledge	78.0%	79.5%	81.9%	87.1%
Training of new social scientists." (Q.30)	70.2%	48.2%	58.3%	75.5%
(number of cases)	(295)	(195)	(243)	(279)

Table 4.7 (continued)

"How important should the following factors be in the distribution of federal research money among a set of applicants? [percentage indicating some or high importance][a]				
Merits of an applicant's research proposal	99.6%	99.5%	99.6%	99.3%
Relevance of proposal topic to agency interests	76.3%	91.4%	88.3%	89.7%
Relevance of proposal topic to national needs."	75.8%	96.2%	91.6%	87.6%
(Number of cases)	(248-262)	(210-215)	(273-281)	(290-295)

[a]Response categories: High importance, some importance, no importance.

and beliefs regarding the state as a legitimate institution in American society may predetermine the individual's attitude toward state financing of research. A supporter of the existing political institutions would find government research policies acceptable, while a critic of the state would tend to find them unacceptable. Another source could be individual dependency. The social scientist's dependency on the state for research funding may significantly shape his or her perspective on state financing of research. The incentives for obtaining and retaining federal research support are strong. There is likely to be a tendency for those with considerable federal support or the need for it to view state policies in more sanguine terms than those with less dependency on the state. Whatever the social scientist's general perspective on the state, the role as researcher may have a major bearing on interpretations of federal research policies. If this is the case, it would indicate that the third component of the disciplinary paradigm--values and beliefs regarding relations with the federal government--is influenced by the structure of federal financing of social research. The corresponding null hypothesis is: the social scientist's views of government-discipline relations are independent of his or her individual dependency on the state for research funding.

Views on five aspects of government-discipline relations are examined as they relate to measures of state legitimacy and individual dependency. Individual dependency is measured through

a single previously defined variable: the amount of the largest federal research grant or contract over the past five years (amount of federal funding [log]). The measure of state legitimacy consists of a Likert-type scale based on five attitude questions.[6] A high score on this scale indicates the respondent sees major national government institutions as operating relatively effectively, benignly, and without class or sectoral bias. The measures of views on the five aspects of government-discipline relations are as follows (all are Likert-type scales):

Discipline Advancement: A four-item scale tapping the belief that the federal government is committed to the advance of disciplinary knowledge, that federal research grants are contributing to this end, and that the criteria used in the distribution of federal research money are scientific.

Political Alliance: A three-item scale measuring the belief that the federal government and the social science discipline have formed and ought to form a political alliance to solve American "social problems."

Professional Association Grant Power: A two-item scale assessing the belief that social scientists, through their major professional association, should collectively have greater control over federal research priorities and the selection of federal grant and contract recipients.

Professional Association Political Challenge: A two-item scale measuring the belief that social scientists, through their major professional association, ought to take stands regarding

policies of the national government and the relation of the professional association to the national government.

Discipline Social Organization: A two item scale measuring the belief that an alliance exists between the federal government and elite members of the discipline, with federal agencies favoring the elite in the distribution of grants, and [illegible] elite departments favoring those with federal grants in hiring and promotion. More generally, this index is used as a measure of the belief that federal research policies affect the discipline's internal organization.[7]

It is expected that a high degree of individual dependency and a positive regard for the state will each lead to favorable views on the state's role and impact in financing research. Government funding is more likely to be seen as benefiting the discipline (discipline advancement) and serving the public interest (political alliance). There will be less inclination to view the professional association as an instrument for collective challenge of federal policies, whether over the issue of how federal grants are distributed (professional association grant power) or more general political concerns (professional association political challenge). Similarly, federal research support is less likely to be viewed as influencing the discipline's internal social organization (discipline social organization).

It is also anticipated that the view of government-discipline relations will vary with a person's standing in the discipline. The more established members of the discipline will be prone to

have a greater overall confidence in the social organization and priorities of the discipline, while more marginal members are less likely to have a positive regard for existing arrangements. It has already been shown that there is a zero-order association between individual professional status and receiving federal support,[8] and a similar association can be expected between professional status and general state ideology. Such links may lead to an artifactual relation between state ideology, individual dependence, and views on the five aspects. Accordingly, professional status is introduced as a control factor in the following analysis. Professional status is measured by the previously defined individual professional status variable.[9]

Nearly all of the simple correlations between state legitimacy and views of government-discipline relations are in the predicted direction (Table 4.8; coefficients are presented in the table with a positive value when the association is consistent with expectations). Similarly, simple correlations between amount of federal funds and views of government-discipline relations are consistently in the predicted direction. The only major exception in the latter pattern involves views of political challenges by the professional association of the national government; there is virtually no relationship with the amount of federal funds. Neither the state legitimacy nor the individual dependency associations are significantly reduced when two other possibly salient variables are controlled. The partial correlations between state legitimacy and views of government-discipline relations, controlling for amount of federal funds and individual professional status, are generally as large as the original zero-order associations. Partial correlations between amount of federal funds

Table 4.8

Simple and Controlled Associations between Amount of Federal Funds, State Legitimacy, and Views of Government-Discipline Relations

Views of Government-Discipline Relations	Discipline															
	Anthropology				Economics				Political Science				Psychology			
	$r_{(S)}$	$p_{(S)}$	$r_{(A)}$	$p_{(A)}$	$r_{(S)}$	$p_{(S)}$	$r_{(A)}$	$p_{(A)}$	$r_{(S)}$	$p_{(S)}$	$r_{(A)}$	$p_{(A)}$	$r_{(S)}$	$p_{(S)}$	$r_{(A)}$	$p_{(A)}$
Discipline advancement	.257	.254	.249	.239	.252	.292	.270	.303	.127	.134	.091	.111	.103	.120	.320	.307
Political alliance	.288	.273	.150	.131	.162	.190	.224	.234	.095	.097	.179	.192	.174	.190	.176	.222
Professional association grant power	.173	.148	.139	.088	.192	.207	.165	.204	.066	.061	-.045	-.057	.019	.031	.257	.240
Professional association political challenge	.439	.429	-.025	-.064	.349	.337	-.063	-.009	.399	.399	-.070	-.074	.247	.248	.059	.047
Discipline social organization	.202	.181	.133	.091	.175	.205	.229	.233	.143	.145	.088	.088	.116	.114	.354	.310
(number of cases)	(185-210)				(145-183)				(174-238)				(222-249)			

Note: A positive association indicates the relationship is in the direction expected; see text.

Table 4.8 (continued)

[a]The simple and partial correlation variables are as follows:

r(S) simple correlation between V and S

r(A) simple correlation between V and A

p(S) partial correlation between V and S, controlling for A and I.

p(A) partial correlation between V and A, controlling for S and I.

where V is the view of government-discipline relations
S is state legitimacy
A is amount of federal funds
I is individual professional status

and views of government-discipline relations, controlling for state legitimacy and individual professional status, are also comparable in size to the uncontrolled associations. In two disciplines--anthropology and political science--state legitimacy is generally better than amount of federal funds in predicting views of government-discipline relations; the reverse is true in the other two fields. Similar patterns are noted if another measure of individual financial dependency on the state previously defined--an index representing the use of costly research procedures over the past five years (research expenses scale)--is substituted for amount of federal funds.

State legitimacy and amount of federal funds generally explain approximately the same amount of variance in the views of government-discipline relations, with one major exception. State legitimacy is a good predictor of views of professional association political challenge (partial correlations range from .23 to .43), while amount of federal funds is unrelated (all partial correlations are close to zero). Of the five facets of government-discipline relations considered, this is the only one to make no explicit mention of federal support for academic research. This suggests that individual dependency on the state narrowly influences the social scientist's perspective. Only views of government-discipline relations that specifically involve federal finanicial backing would appear to be affected.

In sum, the evidence indicates that social scientists' beliefs

regarding the benignness, effectiveness, and fairness of the state have a significant bearing on their evaluation of state-discipline relations. The more favorable the image of the national government, the more likely is the social scientist to view federal funding of social research as a service to the discipline's and public's interest, to oppose challenges of federal policies by the discipline's professional association, and to believe that federal grants do not influence the social organization of the discipline. The social scientists' financial dependency on the state independently has many of the same consequences. The greater the use of federal research funds over the past five years, the more likely is the social scientist to view government-discipline relations in a positive light.

It appears that federal funding of academic social research, at least as administered in recent years, fosters self-legitimizing values within the social science community. Recipients of federal support tend to take a more favorable view of this state involvement than those without backing. Whether these values diffuse more broadly through the discipline cannot be directly ascertained within the limits of the present study. Several factors, however, suggest that this may be occurring. Recipients of federal support tend to have higher status in their discipline, to be employed in more prestigious departments, and to more often be cited in scholarly journals than those without federal money. If established and prominent members of the discipline are more influential in setting opinion trends than less visible colleagues, the elite's attitudes toward government-discipline relations should become shared, though less intensively, by unfunded social scientists. We

demonstrated earlier that the structure of government funding does not appear to be aimed at legitimizing state support of academic research, but it seems that this is an unintended by-product in any case. Such a spread of supportive ideology may help explain the sharp disparity between the overall regard social scientists' have for the state in general and government-discipline relations in particular. While government-discipline relations are viewed approvingly by most social scientists, only a minority take a similar position on state policies in general (paralleling the public's low confidence in the national government during the same period [Miller, 1974]).[10] If overall confidence in the state were the sole major source of attitudes toward government-discipline relations, disapproving views of the latter should be much more widespread. The condition of dependency on the federal government resulting from its massive infusion of research funds may well be chiefly responsible for the high esteem with which the social science-federal government complex is generally held.

The evidence is clearly inconsistent with the null expectation that social scientists' views of government-discipline relations are independent of individual financial reliance on the state. It indicates that the third component of the disciplinary paradigm--values and beliefs regarding relations with external institutions--is subject to significant state influence.

Discussion

The evidence indicates that state research policies have significant influence on academic social scientists (1) research priorities and (2) values and beliefs regarding the structure of the federal government's relationship with the discipline. It was also found that the influence process is substantially mediated through the individual social researcher's financial dependency on the state. Social scientists whose research costs are high and whose research has been funded by the government are more likely than those less dependent on the government to (1) change their research in response to failure to obtain or declines in federal funding, and (2) take a more favorable attitude toward the character of the government-discipline relations. On the other hand, the evidence does not support the commonly held belief that the government also affects the social organization of the discipline. The data are not consistent with the contention that young faculty members receiving federal grants and contracts are more likely to receive promotion and tenure than unfunded colleagues.

Research priorities are a major element of the general component of a discipline's paradigm, values and beliefs on theory and research. Views of government-discipline relations are a major element of another general paradigm component, values and beliefs regarding the discipline's relations with other institutions. It appears that major elements of these components are shaped by the distribution of federal research money.

If the allocation were random or congruent with the priorities and preferences of the discipline, the state's imprint on the discipline should be relatively unimportant. The main effect would be, at most, a reinforcement of the paradigm, making challenges of the dominant patterns more difficult to mount. However, government allocations are neither random nor solely a matter of serving the discipline's self-defined financial needs. Grants and contracts are distributed substantially in accord with the government's concern for policy relevant information. If the federal investment is sustained on a substantial scale, as has been the case over the past decade, state priorities will be significantly reflected in the research work undertaken by social scientists.

Discipline members who object on either intellectual or political grounds to the state's role in shaping the activity of their discipline will tend to be isolated by the effects of the federal investment itself. We have seen that individual dependency on the government for research funds generates beliefs and values that characterize state involvement as desirable and legitimate. And, more specifically, those who have been recipients of federal grants or contracts are significantly more likely to take a position that the professional association should not have a hand in establishing federal research priorities and in distributing federal money. Thus, individual dependency discourages efforts to collectively bargain for different state priorities. Without effective collective action in the offing, social scientists are likely to pursue the individually rational strategy of simply maximizing their personal chances of obtaining

government support. If research money is needed, there may be little choice but to fashion one proposal after another to fit current government policy priorities. Thus, the third component of the paradigm, perspective on the relation of the discipline to other institutions, has an impact on the research directions of the discipline, albeit one of structural conduciveness rather than direct determination of research topics. Similarly, although academic departments do not appear to promote recipients of federal grants over non-recipients, the widespread belief that they do may still impel young faculty members to orient their work toward fundable topics. Thus, the second paradigm component, the social organization of the discipline, may also be having an impact on research priorities.

Overall, the evidence is generally contrary to expectations based on "internalist" views of the scientific paradigm. Social science paradigms are not autonomous and free of significant external influence. Moreover, it would appear that the components of the paradigm are interactive,with each helping to determine the others. In sum, research and theoretical priorities and understandings in a discipline are not the sole determinants of the discipline's social organization and views of its relation to external institutions. Nor are the research and theory immume from the influence of these other paradigm components.

Section IV
NOTES

1. Kuhn's critics agree that Kuhn's early work (1962) employed the concept of the scientific paradigm in at least several major distinct senses (see Masterman [1970] and others in Lakatos and Musgrave [1970], and Shapere [1971]). Only Kuhn's "sociological" or "disciplinary matrix" definition of the paradigm is of direct interest here.

2. The question is as follows: "Has your research over the past five years involved any of the following? Extensive travel; extensive interviewing; purchase of costly equipment or supplies; a substantial research staff (more than two people); analysis of quantitative evidence; statistical tests; computer-aided analysis; paid respondents or subjects." (Q.11) The research expense index consists of a simple sum of the number of items specified, with six or more scored as six. The mean values of the index for anthropology, economics, political science, and psychology, are,respectively, 2.94, 2.27, 2.51, and 3.14. There should be substantial reciprocal influence between the amount of federal funds and the research expense measure, since high anticipated research costs will increase the likelihood of applying for federal assistance, and receipt of a federal grant or contract in turn will facilitate actual use of the costly techniques. The correlation between the two measures ranges from .463 in economics to .553 in psychology.

3. The multiple correlation coefficient for a regression of amount of federal funds (log) on the three group elements ranges from .378 in political science to .602 in psychology, and

for a regression of research expenses on the three group elements the coefficient takes on values from .323 in anthropology to .585 in psychology.

4. For elaboration on this measure, see note 2.3.

5. Illustrative evidence on a strong aggregate relationship between the scale of academic science programs and the level of state support can be found in National Science Foundation (1970) and McGinnis (1972).

6. The items comprising the general state ideology scale are as follows.

General State Ideology Scale Items

Item	Mean	Standard deviation	Item-scale correlation
Considering everything, the U.S. armed forces deserve great repect.	2.58	0.82	.719
Over the past decade the American political elite has provided relatively effective leadership	3.20	0.77	.660
The national government has generally been much more responsive to the interests of big business than to other sectors or groups.	1.77	0.81	.696
A fair trial can usually be expected in the federal courts irrespective of the defendant's political leanings or economic standing.	2.39	0.83	.615
In recent years, the dominant force behind U.S. foreign policy has been economic imperialism.	2.60	0.93	.713
Cronbach's alpha= .716			

All items appear in question 18. Values reported in the above table are for all disciplines combined (numbers of cases range

from 983 to 1031). Item intercorrelations are substantially the same within each of the disciplines. The Likert-type response categories and their coding values are: strongly agree (1), agree with reservations (2), disagree with reservations (3), and strongly disagree (4). Several of the questions are based on items in Muller's (1972) trust in political authorities scale.

7. The items for the five scales on beliefs about federal research policies are as follows.

Views of Federal Research Policies Scales and Items

Scale and Item	Mean	Standard deviation	Item-scale correlation
Discipline advancement			
Over the past decade the federal government has become increasingly committed to advancing knowledge in my discipline.(Q.24)	2.76	0.88	.640
The most able and fair-minded representative of my discipline sit on federal research review panels and advisory boards. (Q.32)	2.58	0.74	.685
Scientific criteria are the only important considerations in selecting grant recipients in NSF and NIMH. (Q.32)	2.66	0.83	.635
Federal research grants are contributing substantially to the advance of knowledge in my field. (Q.32)	2.13	0.83	.686
Cronbach's alpha =0.557			
Political alliance			
The federal government and many members of my discipline have joined forces in recent years to attempt to start solving pressing domestic social problems. (Q.24)	2.80	0.83	0.639

In the long run, social reseach is more likely to benefit American society if members of my discipline avoid federal funding. (Q.32)	3.14	0.77	0.657
Closer collaboration between social scientists and federal policy makers would aid in the understanding and solving of pressing social problems. (Q.32)	1.90	0.71	0.663
Cronbach's alpha= 0.315			
Professional association grant power			
The major professional association in your discipline should have a strong direct role in the setting of federal research priorities and distribution of federal research money. (Q.22)	2.48	0.95	0.895
The major professional association in your discipline should select those who serve as representatives of the discipline on federal panels and boards. (Q.22)	2.30	0.94	0.893
Cronbach's alpha=0.747			
Professional association political challenge			
The major professional association in your discipline should avoid taking official stands which strongly antagonize the national government. (Q. 22)	3.16	0.89	.853
The major professional association in your discipline should not take positions with regard to the profession's relation to the national government. (Q. 22)	3.11	0.987	.880
Cronbach's alpha= 0.659			
Discipline social organization			
Federal financing of research in the social sciences currently tends to concentrate funds at a few well-known institutions. This distribution reflects the advantages those with federal grants and contracts have in acquiring a positon at a well-known school. (Q.28)	2.11	0.81	0.883

Federal financing of research in the social sciences currently tends to concentrate funds at a few well-known institutions. This distribution reflects the advantage those at well-known schools have in acquiring federal grants and contracts. (Q.28)	1.64	0.67	0.326

Cronbach's alpha= 0.623

Values in the above table are for all disciplines combined (number of cases range from 839 to 1044).

The Likert-type responses categories and their coding values are: strongly agree (1), agree with reservations (2), disagree with reservations (3), and strongly disagree (4).

8. The simple correlation between the amount of federal funds (log) and individual professional status ranges from 0.156 in political science to 0.365 in psychology (Table 3.5 and note 3.15).

9. The individual professional status measure is defined in note 3.8. Six or more professional positions, memberships, and honors are coded as six in this measure's use here.

10. The state legitimacy scale ranges in value from 1 ("strongly agree") to 4 ("strongly disagree"). The average score for all disciplines combined is 2.76 (s.d.=0.57), indicating a slight overall tendency to disagree with statements asserting the legitimacy of the national government.

Section V

CONCLUSION: SOCIAL SCIENCE AND THE STATE

However measured, the federal government clearly dominates the research finance markets faced by academic social scientists. Two-fifths of all expenditures for social research conducted in colleges and universities is contributed by federal agencies. In some disciplines, such as psychology, the proportion is well over half. The federal government spends several thousand dollars annually in some fields for every academic social scientist in America. Though this money is heavily concentrated, at any one time more than a third of all academic social researchers are receiving federal support for their work. No other institution looms as important as the national government in the area of research finance.

Like public relief, corporate subsidies, defense contracts, and poverty programs, government outlays for social research are undertaken for various reasons, both manifest and latent. The present study focused on isolating the central purposes underlying federal expenditures on social research. It also examined the impact these expenditures have on the paradigms of the social science disciplines. A major analytic procedure involved examination of the distribution of federal money to academic social scientists, on the assumption that this distribution reflects federal aims. Federal agencies presumably select for support those social scientists whose research product is most likely to contribute toward federal objectives. Different objectives should generate distinctive selection patterns. The absence of a predicted pattern is evidence that the corresponding purpose does not underlie federal support; the presence of a predicted pattern is evidence suggesting that the

associated purpose is a major state objective.

Observed patterns of support in anthropology, economics, political science, and psychology rule out several plausible objectives. The federal government is apparently not orienting its research support toward increasing public confidence in the state, perpetuating general patterns of social relations in the society, such as discrimination against women, or legitimizing among academics the role of doing social research for the state. The patterns are consistent with other plausible objectives. The federal government is apparently concerned with promoting social research for the advancement of social science and for application by government agencies, although there is some variation by discipline. While producing policy relevant research is an objective in all four disciplines, producing social research for social science appears significant in only two fields (anthropology and psychology). In all fields except anthropology the government also evidences concern that its investment produce a finished research product.

For examination of the impact of federal support on the social sciences, three components of a discipline's scientific paradigm are distinguished: values and beliefs regarding the state of the field's research and theory and its priority areas for further inquiry; the social organization of the discipline, including the structure of social scientist employment in colleges and universities; values and beliefs regarding the discipline's appropriate and actual relationship with outside institutions, including the federal government. The data indicate that government support of social research is having a significant impact on at least the first and third components. Social scientists report that they have substantially altered their

research plans following failure to receive requested federal funding and in response to changing federal policies. Those who have grown most reliant on the federal government for sponsorship of their research are also the most likely to take such actions. In regard to views of the discipline's relations with the federal government, an ideology is widespread that the association is appropriate and properly functioning. It is commonly believed that federal grants and contracts contribute to the advance of the field and that the government should continue to be heavily involved in establishing research priorities. There is evidence that the relationshp is viewed so positively in part because of the dependency federal support creates among social scientists. Those dependent on the continued beneficience of the state are also those prone to see government-discipline relations in the most favorable light.

The second component of the paradigm--social organization of the discipline--is apparently not affected by federal sponsorship in at least the crucial area of promotion and tenure in academic departments. It is widely believed that a candidate for promotion who commands government support will be evaluated more favorably than a candidate without sponsorship. But the data imply that this factor plays a minimal, if not negligible, role in promotion decisions during the early years of an academic career.

The predominant mode of federal expenditure on social research is the individual grant or contract to the academic social scientist. The use of this form of organization rather than alternatives, such as conducting research within federal

agencies or contracting with private research organizations, may significantly inhibit the government from fully determining the use to which its research money is put. Social scientists are free to reject government support for a project if the project does not meet the discipline's standards of scientific merit, and some surely avoid sponsorship for this reason. However, as we have seen, this power of resistance, whether expressed as individual noncooperation or organized boycott, is a limited power. The federal government holds a virtual monopoly in the supply of money for social research. The individual dependency on the government this creates among academic social researchers significantly undermines the likelihood that a substantial sector will refuse cooperation.

Nonetheless, the inability of the government to require academics to devote themselves to government research priorities may help explain why some state funds are oriented toward basic research. The social science communities may be able to extract money for what they see as high priority problems in return for a willingness to also conduct research on the government's high priority concerns. Through a compromise on the part of both parties, the ends of each are served, although not without costs to both sides. The social sciences devote a part of their effort to research that will serve the state but not the discipline; the federal government invests some of its resources in research that will serve the advance of social science though not the immediate interests of the government. If this exchange relationship is indeed characteristic of government-discipline relations at

present, it should be asked why the government does not resort to inhouse research or contract research with non-academic organizations. It would appear that the latter modes of research investment should prove more cost-effective for the government.

One explanation may be that there are indirect advantages in acquiring research from academic social scientists. These advantages may outweight the costs of having to sponsor some research that is irrelevant from the state's point of view. One benefit may be that investments in academe have a multiplicative effect on research that cannot be achieved otherwise. If government sponsorship of a subfield is sustained over a substantial period, the area is likely to expand, invisible colleges will be formed, and journals, conferences, and agendas for further research will proliferate. The subfield acquires an autonomous existence, and social scientists reluctant to engage in applied research for the government will then be more inclined to conduct research in what appears to be a legitimate area of basic inquiry. Thus the government is able to indirectly orchestrate the research activities of many more social scientists than it can afford to support directly. Another benefit may lie in the consequences for higher education. Academic social scientists are not only researchers but also college teachers. These roles are not exclusive, and research interests are likely to become manifest in teaching concerns and orientations. It can be speculated that social scientists working on policy relevant research are more prone to offer courses related to the policy questions, to introduce materials based on their research, to interest students in

the same policy concerns, and in general to legitimize cooperation with the federal government among their students. Neither of these indirect advantages are possible if sponsorship is transferred to non-academics.

However, under certain circumstances, the indirect benefits can also bring unwanted political consequences. Many faculty members have openly objected to what they see as the corrupting influence of government support on their discipline and college or university. Others have opposed what is felt to be an organizing of academic research for political ends which are unacceptable, such as prosecution of the Vietnam war.[1] And a major demand of the student protest movement during the late 1960 and early 1970s was that government sponsored research on campus, particularly where military related, be terminated. It is possible that students and faculty members opposed to government support will be more successful in mobilizing pressure to force changes than has been the case in the past. It thus appears that although the government has been effectively organizing academic research for state ends, it may also be creating contradictory tendencies. Under politically oportune circumstances, these tendencies could be politically translated into a severe restriction of the government's use of academic social science. State resources for controlling nominally private institutions in America are immense, but in using them simultaneous opposing developments may be set in motion, indicating that state hegemony over private life is both a limited and fragile one.

Section V

NOTES

1. For representative statements of both the intellectual and political critique of government influence on social research, see Horowitz (1967, 1971), Roszak (1967), Beals (1969), Reynolds and Reynolds (1970), Colfax and Roach (1971), Nisbet (1971), van den Berghe (1970), Blackburn (1973), and the publications of various dissenting movements in the social sciences, including Anthropologists for Radical Political Action, Union of Radical Political Economists, Caucus for a New Political Science, radical sociology organizations (Sociology Liberation Movement, Union of Radical Political Sociologists, Conference of Socialist Sociologists, Union of Marxist Social Scientists), Committee of Concerned Asian Scholars, and Science for the People/Scientists and Engineers for Social and Political Action.

BIBLIOGRAPHY

Althusser, Louis
1971 "Ideology and ideological state apparatuses." In Lenin and Philosophy and Other Essays, Louis Althusser. Ben Brewster, translator. New York: Monthly Review Press.

Altvater, Elmar
1973 "Notes on some problems of state interventionism." Working Papers on the Kapitalistat (1): 96-108.

American Anthropological Association
1972 Guide to Departments of Anthropology, 1972-73. Nathalie F. S. Woodbury, ed. Washington, D. C.: American Anthropological Association.
1973 "Directory, 1973." In Annual Report, 1972. Washington, D. C.: American Anthropological Association.

American Economic Association
1970 1969 Handbook of the American Economic Association. In American Economic Review 59 (January):1-603.

American Political Science Association
1973 Biographical Directory, Sixth Edition. Washington, D. C.: American Political Science Association.

American Psychological Association
1973 Biographical Directory of the American Psychological Association. 1973 Edition. Washington, D. C.: American Psychological Association.

American University Press Services
1972 The National Faculty Directory, 1973. Detroit: Gale Research Corporation.

Annals of the American Academy of the Political and Social Sciences
1971 Special Issue on "Social Science and the Federal Government." 394 (March).

Balbus, Isaac D.
1973 The Dialectics of Legal Repression: Black Rebels before the American Criminal Courts. New York: Russell Sage Foundation.

Baritz, Loren
1960 Servants of Power: A History of the Use of Social Science in American Industry. Middletown, Conn.: Wesleyan University Press.

Bayer, Alan E.
1970 "College and university faculty: A statistical description." ACE Research Reports 5 (5). Washington, D. C.: American Council on Education.
1973 "Teaching faculty in academe: 1972-73." ACE Research Reports 8 (2). Washington, D.C.: American Council on Education.

Beals, Ralph L.
1969 Politics of Social Research: An Inquiry into the Ethics and Responsibilities of Social Scientists. Chicago: Aldine Publishing Company.

Behavioral and Social Sciences Survey Committee
1969 The Behavioral and Social Sciences: Outlook and Needs. Englewood Cliffs, N. J.: Prentice-Hall.

Ben-David, Joseph
1971 The Scientist's Role in Society: A Comparative Study. Englewood Cliffs, N. J.: Prentice-Hall.

Bernal, J. D.
1971 Science in History. Volume 4: The Social Sciences: Conclusion. Cambridge, Mass.: MIT Press.

Blackburn, Robin, ed.
1973 Ideology in Social Science: Readings in Critical Social Theory. New York: Random House.

Blume, S. S., and Ruth Sinclair
1973 "Chemists in British universities: A study of the reward system in science." American Sociological Review 38 (February): 126-138.

Blume, Stuart S.
1974 Toward a Political Sociology of Science. New York: The Free Press.

Blumstein, Alfred, and Jesse Orlansky
1965 Behavioral, Political, and Operational Research Programs on Counterinsurgency Supported by the Department of Defense. Washington, D. C.: Institute for Defense Analysis.

Bowles, Samuel
1974 "Unequal education and the reproduction of the social division of labor." In The Education Establishment, ed. Elizabeth L. Useem and Michael Useem. Englewood Cliffs, N. J.: Prentice-Hall.

Cartter, Allan M.
1966 An Assessment of Quality in Graduate Education: A Comparative Study of Graduate Departments in 29 Academic Disciplines. Washington, D. C.: American Council on Education.

Cherns, A. B.
1970 "Social sciences and policy." The Sociology of Sociology, Paul Halmos, ed. The Sociological Review Monograph 16. Keele, U. K.: The University of Keele.

Cherns, A. B., R. Sinclair, and W. I. Jenkins., eds.
1972 Social Science and Government: Policies and Problems. London: Tavistock Publications.

Christie, Richard
1964 "Support of basic research in intergroup relations." Review of Religious Research 5 (Spring): 132-137.

Cole, Jonathan R., and Stephen Cole
1971 "Measuring the quality of sociological research: Problems in the use of the Science Citation Index." American Sociologist 6 (Feb): 23-29.
1973 Social Stratification in Science. Chicago: University of Chicago Press.

Colfax, J. David, and Jack L. Roach, eds.
1971 Radical Sociology. New York: Basic Books.

Collins, Randall
1971 "Functional and conflict theories of educational stratification." American Sociological Review 36 (December): 1002-1019.

Connor, Patrick
1972 "Scientific research competence: Two forms of collegial judgment." Pacific Sociological Review (July): 355-366.

Cook, Stuart
1957 "Desegregation: A psychological analysis." American Psychologist 12 (January): 1-13.

Crane, Diana
1970 "The academic marketplace revisited: A study of faculty mobility using the Cartter ratings." American Journal of Sociology 75 (May): 953-964.

Crawford, Elisabeth, and Albert D. Biderman, eds.
1969 Social Scientists and International Affairs: A Case for a Sociology of Social Science. New York: John Wiley and Sons.

Cravens, John L.
1966 "The use of publication citations in educational research." Journal of Educational Measurement 3 (Fall): 243-259.

Duncan, Otis Dudley
1966 "Path analysis: Sociological examples." American Journal of Sociology 72 (July): 1-16.

Eakins, David Walker
1966 The Development of Corporate Liberal Policy Research in the United States, 1885-1965. Unpublished Ph.D. dissertation, Department of History, University of Wisconsin.

Friedrichs, Robert W.
1970 A Sociology of Sociology. New York: The Free Press.

Furniss, W. Todd, ed.
1973 American Universities and Colleges. 11th edition. Washington, D. C.: American Council on Education.

Galliher, John F., and James L. McCartney
1973 "The influence of funding agencies on juvenile delinquency research." Social Problems 21 (Summer): 77-90.

Gaston, Jerry
1973 Originality and Competition in Science: A Study of the British High Energy Physics Community. Chicago: University of Chicago Press.

Gouldner, Alvin W.
1970 The Coming Crisis of Western Sociology. New York: Basic Books.

Guilford, J. P.
1954 Psychometric Methods. New York: McGraw-Hill.

Gurr, Ted Robert
1970 Why Men Rebel. Princeton, N.J.: Princeton University Press.

Hagstrom, Warren O.
1965 The Scientific Community. New York: Basic Books.

Hall, Robert
1972 "Agencies of research support: Some sociological perspectives." In the Social Contexts of Research, ed. Saad Z. Nagi and Ronald G. Corwin. New York: John Wiley and Sons.

Hargens, Lowell L., and Warren O. Hagstrom
1967 "Sponsored and contest mobility of American academic scientists." Sociology of Education 40 (Winter): 24-38.

Amariot, Walter J.
1972 Political Aspects of Social Indicators: Implications for Research. New York: Russell Sage Foundation.

Horowitz, Irving Louis, ed.
1967 The Rise and Fall of Project Camelot. Studies in the Relationship between Social Science and Practical Politics. Cambridge: MIT Press.
1971 The Use and Abuse of Social Science: Behavioral Science and National Policy Making. New Brunswick, N. J.: Transaction Books.

Hughes, R. M.
1934 "Report of the Committee on Graduate Instruction." Educational Record 15 (April): 192-234.

Institute for Scientific Information
1973a Social Sciences Citation Index, 1973. Tri-Annual, Citation Index (January to April). Philadelphia: Institute for Scientific Information.
1973b Social Sciences Citation Index, 1973. Tri-Annual, Citation Index (May to August). Philadelphia: Institute for Scientific Information.

Javetz, Rachel
1972 "American sociologists: A study in the sociology of sociology." Unpublished Ph.D. dissertation, Department of Sociology, Harvard University.

Kenniston, Hayward
1959 Graduate Study and Research in the Arts Sciences at the University of Pennsylvania, Philadelphia: University of Pennsylvania Press.

Kuhn, Thomas S.
1962 The Structure of Scientific Revolutions. Chicago: University of Chicago Press.
1970 The Structure of Scientific Revolutions. 2nd ed. Chicago: University of Chicago Press.

Kuklick, Henrika
1973 "A 'scientific revolution': sociological theory in the United States, 1930-1945." Sociological Inquir 43 (1): 3-22.

Lakatos, Imre, and Alan Musgrave, eds.
1970 Criticism and the Growth of Knowledge. New York: Cambridge University Press.

Lazarsfeld, Paul F., William H. Sewell, and Harold L. Wilensky (eds.)
1967 The Uses of Sociology. New York: Basic Books.

Lodahl, Janice Beyer, and Gerald Gordon
1972 "The structure of scientific fields and the functioning of university graduate departments." American Sociological Review 37 (February): 57-72.

Lyons, Gene M.
1969 The Uneasy Partnership: Social Science and the Government in the Twentieth Century. New York: Russell Sage Foundation.

Masterman, Margaret
1970 "The nature of a paradigm." In Criticism and the Growth of Knowledge, Imre Lakatos and Alan Musgrave, eds. New York: Cambridge University Press.

McCartney, James L.
1970 "On being scientific: Changing styles of presentation of sociological research." The American Sociologist 5 (February): 30-35.
1971 "The financing of sociological research: Trends and consequences." In The Phenomenon of Sociology: A Reader in the Sociology of Sociology, ed. Edward A. Tiryakian. New York. Appleton-Century-Crofts.

McGinnis, Robert
1972 "Federal funding and graduate program assistance." Washington, D. C.: Office of Scientific Personnel, National Research Council.

Merton, Robert K.
1971 Science, Technology and Society in Seventeenth Century England. New York: Harper and Row.
1973 The Sociology of Science: Theoretical and Empirical Investigations. Norman W. Storer, ed. Chicago: University of Chicago Press.

Miliband, Ralph
1969 The State in Capitalist Society. New York: Basic Books.

Miller, Arthur H.
1974 "Political issues and trust in government: 1964-1970." American Political Science Review 68 (September): 951-972.

Mills, C. Wright
1943 "The professional ideology of social pathologists." American Journal of Sociology 49 (September): 165-180.
1956 The Power Elite. New York: Oxford University Press.

Muller, Edward N.
1972 "A test of a partial theory of potential for political violence." American Political Science Review 66 (September): 928-959.

National Research Coucil. Advisory Committee on Government Programs in the Behavioral Sciences
1968 The Behavioral Sciences and the Federal Government. Washington, D. C.: National Academy of Sciences.

National Research Council. Committee on Social and Behavioral Urban Research
1969 A Strategic Approach to Urban Research and Development. Washington, D. C.: National Academy of Sciences.

National Research Coucil. Advisory Committee on the Management of Behavioral Science Research in the Defense Department
1971 Behavioral and Social Science Research in the Department of Defense. Washington, D. C.: National Academy of Sciences.

National Science Board. Special Commission on the Social Sciences of the National Science Board
1969 Knowledge into Action: Improving the Nation's Use of the Social Sciences. Washington, D. C.: U.S. Government Printing Office.

National Science Board, National Science Foundation
1973 Science Indicators, 1972. Washington, D. C.: U. S. Government Printing Office.

National Science Foundation
1969a National Patterns of R&D Resources: Funds and Manpower in the United States, 1953-1970. Washington, D. C.: U.S. Government Printing Office (NSF 69-30).
1969b American Science Manpower, 1968. Washington, D. C.: U.S. Government Printing Office (NSF 69-38)
1970 Impact of Changes in Federal Science Funding on Patterns of Academic Institutions. Washington, D. C.: U. S. Government Printing Office.
1971a Federal Funds for Research, Development, and Other Scientific Activities, Fiscal Years 1970, 1971, and 1972, Vol 20. Washington, D. C.: U. S. Government Printing Office (NSF 71-35).
1971b Federal Support to Universities, Colleges, and Selected Nonprofit Institutions, Fiscal Year 1970. Washington, D.C.: U.S. Government Printing Office. (NSF 71-23)
1972a Federal Funds for Research, Development, and other Scientific Activities, Fiscal Years 1971, 1972, and 1973, Vol. 21. Washington, D.C.: U.S. Government Printing Office (NSF 72-317).
1972b Resources for Scientific Activities at Universities and Colleges, 1971. Washington, D.C.: U. S. Government Printing Office (NSF 72-315).
1974a Federal Funds for Research, Development, and other Scientific Activities, Fiscal Years 1972,1973, and 1974, Vol. 22. Washington, D.C.: U.S. Government Printing Office. (NSF 74-300).
1974b National Patterns of R&D Resources: Funds and Manpower in the United States, 1953-1974. Washington, D.C.: U.S. Government Printing Office (NSF 74-304).

Nelson, William R., ed.
1968 The Politics of Science: Readings in Science, Technology, and Government. New York: Oxford University Press.

Nisbet, Robert
1971 The Degradation of the Academic Dogma: The University in America, 1945-1970. New York: Basic Books.

Oberschall, Anthony, ed.
1972 The Establishment of Empirical Sociology: Studies in Continuity, Discontinuity, and Institutionalization. New York: Harper & Row.

O'Connor, James
1973 The Fiscal Crisis of the State. New York: St. Martin's Press.

Orlans, Harold
1962 The Effects of Federal Programs on Higher Education: A Study of 36 Universities and Colleges. Washington, D.C.: The Brookings Institution.
1973 Contracting for Knowledge: Values and Limitations of Social Science Research. San Francisco: Jossey-Bass.

Parsons, Talcott
1951 The Social System. New York: The Free Press.
1959 "The school class as a social system: Some of its functions in American society." Harvard Educational Review 29 (Fall): 297-318.
1969 Politics and Social Structure. New York: Free Press.

Parsons, Talcott, and Gerald M. Platt
1973 The American University. Cambridge: Harvard University Press.

Pettigrew, Thomas
1961 "Social psychology and desegregation research." American Psychologist 16 ( ): 105-112.

Piven, Frances Fox, and Richard A. Cloward
1971 Regulating the Poor: The Functions of Public Welfare. New York: Pantheon Books.

Pool, Ithiel de Sola and others
1963 Social Science Research and National Security. Washington, D.C.: Smithsonian Institution (available through Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.; AD 437363)

Poulantzas, Nicos
1973 Political Power and Social Classes.
Timothy O'Hagan, translator.
London: New Left Books and Sheed and Ward.

Ranney, Austin, ed.
1968 Political Science and Public Policy.
Chicago: Markham Publishing Company.

Reagan, Michael D.
1969 Science and the Federal Patron. New York:
Oxford University Press.

Reynolds, Larry T., and Janice M. Reynolds, eds.
1970 The Sociology of Sociology: Analysis and
Criticism of the Thought, Research, and Ethical
Folkways of Sociology and Its Practitioners.
New York: David McKay Company.

Robertson, David Allen
1928 American Universities and Colleges.
New York: Charles Scribner's Sons.

Roose, Kenneth D., and Charles J. Anderson
1970 A Rating of Graduate Programs. Washington,D.C.:
American Council on Education.

Rose, Arnold
1967 The Power Structure: Political Process in Ameri-
can Society. New York: Oxford University Press.

Rosen, Steven, ed.
1973 Testing the Theory of the Military-Industrial Complex.
Lexington, Mass.: D.C. Heath (Lexington Books).

Rosen, Steven J., and James R. Kurth, eds.
1974 Testing Theories of Economic Imperialism. Lexing-
ton, Mass.: D.C. Heath (Lexington Books).

Rosengren, William R.
1961 "Institutional types and sociological research: An
hypothesis in role systems and research models."
Human Organization 21 (Spring): 42-48.

Rossi, Peter H.
1964a "Researchers, scholars, and policy makers: The
politics of large scale research." Deadalus 93
(Fall): 1142-1161.
1964b "New directions for race relations research in the
sixties." Review of Religious Research 5 (Spring):
125-132.

Roszak, Theodore, ed.
1967 The Dissenting Academy. New York: Random House.

Schwendinger, Herman, and Julia R. Schwendinger
1974 The Sociologists of the Chair: A Radical Analysis of the Formative Years of American Sociology (1883-1922). New York: Basic Books.

Shapere, Dudley
1971 "The paradigm concept." Science 172 (May): 706-709.

Sherwood, John J., and Mark Nataupsky
1968 "Predicting the conclusions of Negro-White intelligence research from biographical characteristics of the investigator." Journal of Personality and Social Psychology 8 (January): 53-58.

Siegfried, John, J., and Kenneth J. White
1973 "Financial rewards to research and teaching: A case study of academic economists." American Economic Review 63 (May): 309-315.

Simpson, Richard L.
1961 "Expanding and declining fields in American sociology." American Sociological Review 26 (June): 458-466.

Somit, Albert, and Joseph Tanenhaus
1964 American Political Science: A Profile of a Discipline. New York: Atherton Press.

Sprehe, John Timothy
1967 The Climate of Opinion in Sociology: A Study of the Professional Values and Belief Systems of Sociologists. Unpublished Ph.D. dissertation, Department of Sociology and Anthropology, Washington University.

Storer, Norman W.
1966 The Social System of Science. New York: Holt, Rinehart and Winston.

Touraine, Alain
1974 The Academic System in American Society. New York: McGraw Hill.

U.S. Bureau of the Census.
1972 Statistical Abstracts of the United States: 1972.Washington,D.C.: U.S. Government Printing Office.

U.S. Department of Health, Education, and Welfare
1970 Toward a Social Report. Ann Arbor, Mich.: University of Michigan Press.

U.S. House Committee on Foreign Affairs, Subcommittee on International Organizations and Movements
1965 Behavioral Sciences and the National Security. 89th Congress, 1st Session. Washington, D.C.: U.S. Government Printing Office.

U.S. House Committee on Government Operations, Subcommittee on Research and Technical Programs
1971 The Use of Social Research in Federal Domestic Programs (Staff Study), 4 Parts. 90th Congress, 1st Session. Washington, D.C.: U.S. Government Printing Office.

U.S. Office of Education
1972 Education Directory, 1972-73, Higher Education. Washington, D.C.: U.S. Government Printing Office.

Useem, Michael
1973 Conscription, Protest, and Social Conflict: The Life and Death of a Draft Resistance Movement. New York: John Wiley & Sons.

1975 Protest Movements in America. Indianapolis: Bobbs-Merrill.

Van den Berghe, Pierre L.
1970 Academic Gamesmanship: How to Make a Ph.D. Pay. New York: Abelard-Schuman.

Wilson, A.T., Jeremy Mitchell, and Albert Cherns.
1971 Social Science Research and Industry. London: George C. Harrap & Company, Ltd.

APPENDIX A: QUESTIONNAIRE FORM

Cover letters accompanying two waves of questionnaire mailings

Final follow-up letter

Questionnaire form

336 William James Hall
Department of Sociology
Harvard University
Cambridge, Massachusetts 02138
November, 1973

Dear Professor:

Over the past decade there has been a remarkable expansion in the funding of social research by the national government. Federal support increased nearly fivefold during the 1960s, and it is estimated that in recent years nearly half of all research funds for the social sciences have come from federal agencies.

The actual and the appropriate impact of this federal support have been a topic of continuing debate both in the social science community and in the government, and recent federal cutbacks promise to further sharpen the debate. To study the impact of federal funding on social research in the United States, and to assess the views of social scientists toward the government's involvement in social research, a national survey of several social science disciplines is being conducted. The enclosed survey form is part of this research, which has been sponsored by grants from my university and the National Institute of Education. I recognize the limits of a questionnaire, and information is being assembled in other ways to supplement this survey.

Your responses will of course be held in complete confidence, and neither individuals nc their institutions will be identified in any way in reports on this research. To allow for follow-up inquiries to those who do not respond, and to allow for a longitudinal design, a number appears on the upper right-hand corner of the first page of the form.

If there is any problem in recalling information for any of the questions, your best estimate would still be very helpful. Please feel free to make comments or to expand on your answers at any point. I will be happy to send a report on the results of the study, and you may indicate an interest in receiving this report on the last page of the survey form. Please return the form by stapling or taping the opening edge and mailing.

I very much hope you will be able to complete the questionnaire. Thank you for your cooperation.

Sincerely,

Michael Useem
Assistant Professor of Sociology

00158

336 William James Hall
Department of Sociology
Harvard University
Cambridge, Massachusetts 02138
January, 1974

Dear Professor:

Several weeks ago a questionnaire was sent as part of a study on the impact of federal funding on social research in the United States. The value and reliability of the study is highly dependent on your help, especially since the questionnaire has been sent to a relatively small number of people. However, I have not yet heard from you.

I realize that you may have had little time to complete the form when it arrived. In the hope that you might be able to complete the questionnaire now, I have taken the liberty of enclosing another copy in case you misplaced the earlier one.

It should be stressed again that your answers will be held in complete confidence, and neither individuals nor institutions will be identified in any way in reports on this research. I believe the questionnaire is relatively interesting to complete, and your responses will be extremely helpful in ensuring the validity and usefulness of this research.

I very much hope you will be able to complete the form now, and I thank you for your cooperation.

Sincerely,

Michael Useem
Assistant Professor of Sociology

P.S. Please return the form by stapling or taping the opening edge and mailing.

336 William James Hall
Department of Sociology
Harvard University
Cambridge, Massachusetts 02138
February, 1974

Dear Professor:

Recently I sent a questionnaire that was part of a study on the impact of federal funding on social research in the United States. The response to the questionnaire so far has been gratifying, but I have not yet received a copy from you.

Since this study is being conducted with a relatively small number of people, the accuracy of the research is highly dependent on your reply. It should be noted again that your answers will be held in strict confidence, and reports on the research will not identify either individuals or institutions. I would be glad to send a report on the basic results of the study, and your interest in this may be indicated on the last page of the questionnaire.

The usefulness of this study depends on your help, and I very much hope you will now have the opportunity to complete and return the questionnaire. Thank you.

Sincerely,

Michael Useem
Assistant Professor of Sociology

BACKGROUND

1. What is your present rank?
   1. Instructor
   2. Assistant Professor
   3. Associate Professor
   4. Lecturer
   5. Professor
   6. Research Associate
   7. No designated rank
   8. Other _____

2. What kind of appointment do you have?
   1. Regular with tenure
   2. Regular without tenure at present
   3. Acting
   4. Visiting
   5. Other _____

3. Please circle any of the following administrative positions you hold:
   1. Department chairman
   2. Institute, center, or laboratory administrative position
   3. Dean or other academic administrative post
   4. Other _____

4. The academic unit in which you received your highest degree, and the academic unit in which you are currently appointed are:

Unit of highest degree	Unit of current appointment	(if more than one, please circle all that apply and circle twice your primary appointment)
1	1	Anthropology department
2	2	Economics department
3	3	Political science department
4	4	Psychology department
5	5	Sociology department
6	6	Research institute or center
7	7	School of education
8	8	Medical school
9	9	Business school
10	10	Law school
11	11	Other _____

5. During your graduate studies, did you receive any of the following types of financial support: (Please circle any that apply and specify the federal agency or unit, e.g. NSF, NIMH)
   1. Federal traineeship _____
   2. Federal fellowship _____
   3. Federal grant or contract in support of your dissertation research _____
   4. Research assistantship supported by federal funds _____
   5. Veterans benefits
   6. Other federal support _____

RESEARCH AND RELATED EXPERIENCE

6. Over the past five years (1968-1973), have you received financial backing or had any of the following relationships with any of the organizations listed? (Circle any that apply.)

1. Research grant or fellowship
2. Research contract
3. Member of grant review panel or study group
4. Member of advisory board or group
5. Regular consultant
6. Occasional consultant (e.g. field review of grant proposal
7. Employee

							Federal Agency or Unit
1	2	3	4	5	6	7	Agriculture Department
1	2	3	4	5	6	7	Commerce Department
1	2	3	4	5	6	7	A Congressional committee
1	2	3	4	5	6	7	Defense Department
1	2	3	4	5	6	7	Fulbright Program
1	2	3	4	5	6	7	HEW--NIH, NIMH
1	2	3	4	5	6	7	HEW--Office of Education, National Institute of Educ.
1	2	3	4	5	6	7	HEW--other
1	2	3	4	5	6	7	Interior Department
1	2	3	4	5	6	7	Justice Department
1	2	3	4	5	6	7	Labor Department
1	2	3	4	5	6	7	NASA
1	2	3	4	5	6	7	National Endowment for the Humanities
1	2	3	4	5	6	7	National Science Foundation
1	2	3	4	5	6	7	Office of Economic Opportunity
1	2	3	4	5	6	7	Smithsonian Institution
1	2	3	4	5	6	7	State Department (including AID)
1	2	3	4	5	6	7	Transportation Department
1	2	3	4	5	6	7	Veterans Administration
1	2	3	4	5	6	7	White House unit or conference
1	2	3	4	5	6	7	Other federal unit _____
							Unit Whose Primary Support is Federal Government
1	2	3	4	5	6	7	Institute or center in college or university
1	2	3	4	5	6	7	Organization not administered by college or university
							Other
1	2	3	4	5	6	7	A foundation
1	2	3	4	5	6	7	Independent non-profit research organization (e.g. SSRC)
1	2	3	4	5	6	7	Local government agency or unit
1	2	3	4	5	6	7	State government agency or unit
1	2	3	4	5	6	7	An international organization
1	2	3	4	5	6	7	A publishing firm
1	2	3	4	5	6	7	A private corporation (other than a publishing firm)
1	2	3	4	5	6	7	A labor organization
1	2	3	4	5	6	7	Other _____
1	2	3	4	5	6	7	Other _____

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7. Please indicate your one or two central teaching areas and one or two primary areas of research at the present time.

Teaching _____ _____

Research _____ _____

8. Has your department, institute, or center held a federally funded training program(s) within the past five years?
   1. No
   2. Don't know
   3. Yes

   If yes, from what agency(s)? _____
   Were you personally involved in the program? 1. No 2. Yes

9. Over the past five years have you engaged in any research or scholarly writing?
   1. No. If no, skip to question 15, page 5
   2. Yes

10. What has been your average annual research expenditure (including any salaries) over the past five years, to the nearest $1,000, excluding overhead? $_____,000

    On the average, what proportion of your annual research expenditure over the past five years has come from federal government sources? _____%

    If research funds were much more abundant, how much could you effectively spend per year on your own research over the next few years? $_____,000

11. Has your research over the past five years involved any of the following: (Circle any that apply.)
    1. Extensive travel
    2. Extensive interviewing
    3. Purchase of costly equipment or supplies
    4. A substantial research staff (more than two people)
    5. Analysis of quantitative evidence
    6. Statistical tests
    7. Computer-aided analysis
    8. Paid respondents or subjects

12. Apart from your own discipline, do you hope that your research and publishing over the past five years will directly or indirectly benefit any of the following: (Circle all that apply, and place two circles around the group(s) or institution(s) you would most like to see benefitted.)

1. Undergraduate students
2. Graduate students
3. Other social science disciplines
4. People studied in your research, if any
5. Labor
6. Business
7. An ethnic group
8. Poor people
9. Local or state government
10. The federal government
11. Other professions, such as law, social welfare, or urban planning
12. Movements for social change
13. Community action groups
14. Foreign groups, institutions, or governments _____
15. International agency
16. American society, general public
17. Other _____

With regard to the group(s) or institution(s) you would most like to see benefitted (circled twice above, if any), what is likely to be the substance of the benefit?

13. Over the past five years, have you received research funds from an office, committee, institute, or center in your college or university?

1. No
2. Yes

If yes, what was the amount of the largest such grant? $_____

Was this grant out of federal government funds?

1. No
2. Don't know
3. Yes. If yes, what federal agency or unit? _____

14. If you have not held federal research support over the past five years, skip to the next question (number 15).

Consider for a moment your largest federal research grant or contract over the past five years.

Agency of support _____ _____
Total amount (excluding overhead) $_____
Number of years for which funds given: _____ years
A grant or a contract: 1. Grant 2. Contract
You were the principal or co-principal investigator: 1. No 2. Yes

Would you have pursued the study supported by this grant or contract even if the federal backing had been unavailable?

1. Yes, other support would have been available.
2. Yes, even without other support.
3. Yes, but on a reduced scale.
4. Yes, but in a substantially different form.
5. No
6. Other _____

15. Over the past five years, have any new or renewal applications of yours for federal research funds been turned down?

1. No
2. Approved but not funded
3. Yes

If approved but not funded or yes, what eventually became of the original proposal (if more than one, consider the proposal that was most important to you)?

1. Funded by same source after changes and resubmission.
2. Funded by another source near original level requested.
3. Funded by another source at a substantially reduced level.
4. No support obtained but original plan undertaken anyway.
5. No support obtained but a reduced version of the plan carried out.
6. Proposed research has not been done.
7. Other _____

16. Have the recent shifts in and leveling off of federal support for social science research over the last year or two had any effect on your research plans? (Circle any that apply.)

1. Research area has been or may be changed.
2. Less costly research methods have been or may be used.
3. Research scale has been or may be reduced.
4. New sources of funding have been or may be explored.
5. More emphasis has been or may be placed on the potential for applications of your research.
6. No effect.
7. Other _____

17. Are there any federal agencies from which you would prefer over others to receive a grant or contract?
   1. No
   2. Yes

If yes, which agency(s)? _____

Why would you prefer this agency(s)?

Are there any federal agencies whose research support you would probably not request even if your topic closely fit the agency's program of support and you had a good chance of getting a grant or contract?
   1. No
   2. Yes

If yes, which agency(s)? _____

Why would you decline to apply for such funds?

POLITICS

18. Please indicate your agreement or disagreement with each of the following statements.

1. Strongly agree
2. Agree with reservations
3. Disagree with reservations
4. Strongly disagree

SA	A	D	SD	
1	2	3	4	Considering everything, the U.S. armed forces deserve great respect.
1	2	3	4	Over the past decade the American political elite has provided relatively effective leadership.
1	2	3	4	The national government has generally been much more responsive to the interests of big business than to other sectors or groups.
1	2	3	4	A fair trial can usually be expected in the federal courts irrespective of the defendant's political leanings or economic standing.
1	2	3	4	Blue collar workers should have a much greater say in the way their factories and this country are run.
1	2	3	4	The radical student movement has been disruptive of academic life without contributing much.
1	2	3	4	In recent years, the dominant force behind U.S. foreign policy has been economic imperialism.
1	2	3	4	A high guaranteed annual income would generate serious problems for the U.S. economy since many people would not work without the need for money.

19. Over the past five years, have you been associated as a member or consultant with any of the following organizations or groups? (Circle any that apply.)

1. A.A.U.P., American Federation of Teachers, or National Education Assoc.
2. religious related organization
3. civic association
4. women's caucus in a professional association
5. radical caucus in a professional association
6. ethnic caucus in a professional association
7. political party (please specify) _____
8. movement for social change
9. community action group

20. How would you characterize yourself politically at the present time and five or six years ago (1967-1968)?

5-6 yrs. ago	Present	
1	1	1. Left
2	2	2. Left-liberal
3	3	3. Liberal
4	4	4. Middle-of-the-road
5	5	5. Moderately conservative
6	6	6. Strongly conservative
7	7	7. Right

VIEWS OF THE DISCIPLINE AND FEDERAL GOVERNMENT

21. For a person five to ten years beyond a Ph.D. degree, how important are the following factors in his or her reappointment, promotion, and tenure in your department, institute, or center? How important do you personally feel these factors ought to be?

1. High value
2. Some value
3. No value
4. Negative value

Dept. Eval.	Personal Eval.	
1 2 3 4	1 2 3 4	Publication of many scholarly papers and books.
1 2 3 4	1 2 3 4	Publication of high quality scholarly papers and books.
1 2 3 4	1 2 3 4	Distinguished teaching.
1 2 3 4	1 2 3 4	Consulting for or advisory work with the federal government.
1 2 3 4	1 2 3 4	Receipt of a large federal grant or contract.

22. The major professional association in your discipline should . . .

1. Strongly agree
2. Agree with reservations
3. Disagree with reservations
4. Strongly disagree

1 2 3 4 have a direct role in the setting of federal research priorities and distribution of federal research money.

1 2 3 4 select those who serve as representatives of the discipline on federal panels and boards.

1 2 3 4 avoid taking official stands which strongly antagonize the national government.

1 2 3 4 not take positions with regard to the profession's relation to the national government.

23. Those who have been elected to the highest offices in your professional association, who hold positions in the best known departments, who have served as editors of the major journals, and who otherwise have exerted considerable influence on the direction of the discipline . . .

1. Strongly agree
2. Agree with reservations
3. Disagree with reservations
4. Strongly disagree

1 2 3 4 have generally made the greatest contributions to the breakthroughs and inteilectual growth of the discipline.

1 2 3 4 represent a relatively closed circle of researchers who cite, sponsor, and back one another.

1 2 3 4 are those who have worked well with and have been sponsored by the federal governement.

24. Please indicate your agreement or disagreement with each of the following statements.

1. Strongly agree
2. Agree with reservations
3. Disagree with reservations
4. Strongly disagree

1 2 3 4 Over the past decade the federal government has become increasingly ommitted to advancing knowledge in my discipline.

1 2 3 4 Over the past decade an exchange relationship has developed between the government and my discipline, with the government getting needed information and my discipline getting needed money for research.

1 2 3 4 The federal government and many members of my discipline have joined forces in recent years to attempt to start solving pressing domestic social problems.

25. Which of the following positions best characterizes your view of the desirable relation between the federal government and your discipline over the next decade?

The pursuit of social knowledge in your field will be most effective if the federal government . . . (circle one)

1. has no say in setting research priorities.
2. plays a minor role in establishing research directions.
3. works in collaboration with your discipline to set research priorities.
4. takes a central role in planning research directions.

26. Has your knowledge of the kind of research in your discipline that the federal government is supporting or utilizing affected the type of advice you have been giving to students in recent years?

1. No
2. Yes. If yes, in what ways?

27. What do you expect will be the long-range impact on your discipline of the recent shifts in and leveling off of federal funds for social science?

28. Federal financing of research in the social sciences currently tends to concentrate funds at a few well-known institutions. This distribution . . .

1. Strongly agree
2. Agree with reservations
3. Disagree with reservations
4. Strongly disagree

1 2 3 4 is an effective way of advancing knowledge in your discipline.
1 2 3 4 reflects the present distribution of faculty talent.
1 2 3 4 reflects the advantage those with federal grants and contracts have in acquiring a position at a well-known school.
1 2 3 4 reflects the advantage those at well-known schools have in acquiring federal grants and contracts.

29. How important should the following factors be in the distribution of federal research money among a set of applicants:

1. High importance
2. Some importance
3. No importance

1 2 3 Seniority of an applicant
1 2 3 Previous accomplishments of an applicant
1 2 3 Promise of an applicant
1 2 3 Merits of an applicant's research proposal
1 2 3 Relevance of proposal topic to agency interests
1 2 3 Relevance of proposal topic to national needs
1 2 3 Equity--all applicants should receive some support
1 2 3 Other _____

30. Should the national government be heavily involved in financially supporting any of the following areas: (Circle any that apply.)
1. Producing social science knowledge
2. Facilitating the distribution of social science knowledge
3. Using social science knowledge
4. Training of new social scientists

31. Is your appraisal of an article or book affected when you learn that the research had been supported by a federal grant or contract?
1. No
2. Yes

If yes, in what ways?

32. Please indicate your agreement or disagreement with each of the following statements:

1. Strongly agree
2. Agree with reservations
3. Disagree with reservations
4. Strongly disagree

1 2 3 4	The future growth and development of my discipline depends on the availability of large amounts of research money.
1 2 3 4	The most able and fair-minded representatives of my discipline sit on federal research review panels and advisory boards.
1 2 3 4	Scientific criteria are the only important considerations in selecting grant recipients in NSF and NIMH.
1 2 3 4	A person is less likely to speak out against objectionable policies of a federal agency if he or she is on a review panel or advisory board.
1 2 3 4	In the long run, social research is more likely to benefit American society if members of my discipline avoid federal funding.
1 2 3 4	Classified research is not a legitimate activity on college and university campuses.
1 2 3 4	Affirmative action to increase the number of women and blacks receiving federal grants will mean a reduction in the quality of research.
1 2 3 4	Increasing black and female representation on federal research review panels is likely to depress the quality of the research funded.
1 2 3 4	For many members of my discipline, getting large federal grants and contracts has become an end in itself.
1 2 3 4	Closer collaboration between social scientists and federal policy makers would aid in the understanding and solving of pressing social problems.
1 2 3 4	Federal research grants are contributing substantially to the advance of knowledge in my field.
1 2 3 4	Despite the considerable investment in social research, the national government has gotten little knowledge useful to its purposes.
1 2 3 4	With the possible exception of taking a research grant, in my role as a social scientist I would like to have as little to do with the federal government as possible.
1 2 3 4	The acceptance of research evidence in my discipline does not depend on the professional reputation of the person who submits it.
1 2 3 4	The federal government has not made effective use of relevant social research that is already available.

HONORS, PUBLICATIONS, AND HIGHEST DEGREE

33. Have you held any of the following positions, memberships, or honors? (Circle any that apply.)
    1. An office in your discipline's major professional association.
    2. An office in a regional or specialized professional association.
    3. An editor, advisory editor, or associate editor of a professional journal.
    4. An award for distinguished teaching.
    5. An award for outstanding research or a published work.
    6. Membership in a scholarly honorary society (not including memberships obtained while an undergraduate or graduate student).
    7. Review and evaluation of an academic program at another institution.
    8. Delivery of a major guest lecture at another institution.
    9. Non-federal fellowship (e.g. Guggenheim, SSRC, Center for Advanced Study in the Behavioral Sciences).
    10. Other _____

34. Have you authored or coauthored any of the following? (Please indicate the approximate number; include manuscripts accepted for publication.)

Number	
_____	Articles in professional journals and chapters in books
_____	Scholarly books and monographs
_____	Textbooks
_____	Edited books
_____	Reports for federal agencies and commissions

In what year did your first professional publication, if any, appear? _____

35. What is your highest academic degree?
    1. Bachelor's (BA, BS)
    2. Master's
    3. Ph.D.
    4. Ed.D.
    5. Other _____
    6. None

In what year did you receive this degree? _____

From what institution did you receive this degree? _____

36. If you would like to receive a report on the results of this study, please check here: _____

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE. PLEASE STAPLE OR TAPE THE OPENING EDGE AND MAIL. I WILL PAY THE POSTAGE.

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APPENDIX B· INTERVIEW SCHEDULE

CONTACT WITH THE FEDERAL GOVERNMENT

1. Let's begin with your graduate studies. As a graduate student, did you receive any federal financial support, such as a federal traineeship or an assistantship paid by federal money?

(agency or unit)

1. Federal traineeship_____
2. Federal fellowship_____
3. Research assistantship from federal funds_____
4. Other federal support _____
5. No federal support

2. Has your department held a federally funded training program within the past five years.

1. No

2. Yes From what agency?_____

Where you personally involved in the program?

1. No

2. Yes

3. Over the past five years--between 1968 and the present--have you...

a. Held a federal grant or contract?
b. Served on a federal advisory board or review panel, as a fed. consultant, or as a federal employee ?
c. Held a grant or consulted with a foundation, local or state governmental unit, a corporation or publishing firm, or other type or organization?
d. Held a grant from your college or university?

1. Research grant or fellowship
2. Research contract
3. Member of grant review panel or study group
4. Member of advisory board or group
5. Regular consultant
6. Occasional consultant (e.g. field review of grant proposal)
7. Employee

							Federal Agency or Unit
1	2	3	4	5	6	7	Agriculture Department
1	2	3	4	5	6	7	Commerce Department
1	2	3	4	5	6	7	A Congressional Committee
1	2	3	4	5	6	7	Defense Department
1	2	3	4	5	6	7	Fulbright Program
1	2	3	4	5	6	7	HEW--NIH, NIMH
1	2	3	4	5	6	7	HEW--Office of Education, National Inst. of Education
1	2	3	4	5	6	7	HEW--other
1	2	3	4	5	6	7	Interior Department
1	2	3	4	5	6	7	Justice Department
1	2	3	4	5	6	7	Labor Department
1	2	3	4	5	6	7	NASA
1	2	3	4	5	6	7	A National commission
1	2	3	4	5	6	7	National Science Foundation
1	2	3	4	5	6	7	Office of Economic Opportunity
1	2	3	4	5	6	7	Smithsonian Institution
1	2	3	4	5	6	7	State Department (including AID)

1	2	3	4	5	6	7	Transportation Department
1	2	3	4	5	6	7	Veterans Administration
1	2	3	4	5	6	7	White House unit or conference
1	2	3	4	5	6	7	Other federal unit _____
							Unit whose Primary Support is Federal Government
1	2	3	4	5	6	7	Instit. or center in college or univ.
1	2	3	4	5	6	7	Organization not administered by college or university
							Other
1	2	3	4	5	6	7	A foundation
1	2	3	4	5	6	7	Independent non-profit research organization (e.g. SSRC)
1	2	3	4	5	6	7	Local government agency or unit
1	2	3	4	5	6	7	State government agency or unit
1	2	3	4	5	6	7	An international organization
1	2	3	4	5	6	7	A publishing firm
1	2	3	4	5	6	7	A private corporation (other than a publishing firm)
1	2	3	4	5	6	7	A labor organization
							College or University
1	2	3	4	5	6	7	Federal money
1	2	3	4	5	6	7	Non-federal money
1	2	3	4	5	6	7	Other

COST OF RESEARCH

4. What has been your average annual research expenditure over the past five years, to the nearest $1000, including research salaries but excluding overhead?

$_____,000

On the average, what proportion of your annual research expenditure over the past five years has come from federal sources?

_____%

If research funds were much more abundant, thinking of your possible research plans over the next few years, how much do you estimate you could effectively spend per year on your own research?

$_____,000

Has your research over the past five years involved any of the following:

1. Extensive travel
2. Extensive interviewing
3. Purchase of expensive equipment
4. A substantial research staff (more than two people)
5. Analysis of quantitative evidence
6. Computer-aided analysis
7. Payed respondents or subjects

APPLICATION OF RESEARCH

5. Apart from your own discipline, are there any groups, organizations, or institutions that you hope your research and writing over the last five years will directly or indirectly benefit?

1. Undergraduate students
2. Graduate students
3. Other social science disciplines
4. People studied in the research
5. Labor
6. Business
7. An ethnic group
8. Poor people
9. Local or state government
10. The federal government
11. Other professions
12. Movements for social change
13. Community action groups
14. Foreign groups, institutions, or governments
15. International agency
16. American society, general public
17. Humanity
18. Other
19. None

With regard to the group or institution you would most like to see benefitted (#_____), what is likely to be the substance of the benefit?

Through what processes would your research and writing be likely to come to benefit this group?

EXPERIENCE WITH FEDERAL GRANT OR CONTACT

6. [Skip if no grant or contract over past five years] Consider for a moment the federal grant (or contract) from which you recently received funds. (If more than one, focus on major, largest grant or contract).

Would you have pursued the study supported by this grant (contract) even if this federal backing had been unavailable?

0. Question inapplicable (no grant or contract)
1. Yes, without major modification
2. Yes, without major modification since other federal support available
3. Yes, without major modification since other non-federal support available
4. Yes, but on a reduced scale
5. Yes, but in a substantially different form
6. No
7. Other

7. Over the past five years, has any new or renewal application of yours for federal research funds been turned down?

0. Have not applied
1. No
2. Approved, but not funded
3. Yes

[If approved but not funded or yes] Considering the failure to receive funding that was most disappointing in terms of your research interests, what eventually became of the original proposal?

1. Funded by same source after change and resubmission
2. Funded by another source after change and resubmission
3. Funded by another source at a substantially reduced level
4. No support obtained but original plan undertaken anyway
5. No support obtained but a reduced version of the plan carried out
6. Proposed research has not been done
7. Other

8. Are there any federal agencies from which you would prefer to receive a grant or contract?

0. Don't know
1. No
2. Yes [If yes] Which agency? 1. NIH,NIMH 2. NSF 3. Other _____

Why would you prefer this agency?

1. Most likely to have money in own area
2. Minimum restrictions, red tape, strings
3. Clean money
4. Minimum potential for misuse of research or researcher
5. Prestige or reputation of agency
6. Special emphasis in programs
7. Good for dissemination of own research
8. Other

Are there any federal agencies whose research support you would probably not request even if your topic closely fit the agency's program of support and you had a good chance of getting a grant or contract?

0. Don't know
1. No
2. Yes [if yes] Which agency? 1. Defense Dept. 3. State Dept.
   2. CIA 4. Other_____

Why would decline to apply for such funds?

1. Agency's goals, purposes
2. Restrictions, red tape, strings (including problems of secrecy, classified date)
3. Tainted money; association with agency causes field problems
4. Potential for misuse of research or researcher
5. Prestige or reputation of agency
6. Special emphasis in programs (e.g. too applied)
7. Poor for dissemination of own research
8. Other

NETWORK CONTACTS

9. At which federal agencies, if any, do you know a staff member well enough to call or write for information and informal advice? How did you become acquainted with this person(s)? (Record the first three mentioned)

10. Think for a moment of two or three people to whom you have gone or would go for information and advice on federal research policies or on how to secure a federal grant.

Could you briefly describe their occupational position?

Person			
1	2	3	Same department
1	2	3	Faculty, same institution
1	2	3	Administration, same institution
1	2	3	Faculty, other institution
1	2	3	Federal agency or unit
1	2	3	Other

How did you first become acquainted with each of them?

Why would you go to each of them for information and advice?

FEDERAL/DISCIPLINE RELATIONS

11. Has your knowledge of the kind of research in your discipline that the federal government is supporting and utilizing affected the type of advice you have been giving students in recent years?

0. Don't know
1. No
2. Discourage undergraduates from entering field
3. Warn graduates of limited job opportunities
4. Warn graduates of poor funding in some research areas
5. Other

12. If the[American Anthropological Association, American Economic Assoication, American Political Science Association, American Psychological Association]assumed a much more direct role in setting federal research priorities in your discipline and in selecting people to serve on federal proposal review panels, would you see this as a beneficial or adverse situation for yourself and the discipline.

13. As you know, federal money is not randomly distributed to researchers. Does it appear to you that the existing distribution primarily coincides with faculty talent, or are other factors also significant?

14. Is your appriasal of an article or book affected when you learn that the research had been supported by a federal grant or contract?

15. If a young member of your department receives a substantial federal research grant or contract, is this likely to affect his or her chances for reappointment and tenure in your department?

16. Have recent shifts in and leveling of federal support for research in your discipline had any affect on your research plans?

17. What do you expect will be the long-range impact on your field of the recent shifts in federal funds for your discipline?

BACKGROUND

I have a few final questions on your academic situation, past and present.

18. What is your present academic rank?

1. Instructor
2. Assistant Professor
3. Associate Professor
4. Lecturer
5. Professor
6. Research Associate
7. No designated rank
8. Other

19. Do you have tenure?

1. Regular with tenure
2. Regular witout tenure at present
3. Acting
4. Visiting
5. Other

20. Do you hold any administrative positions?

1. Department chairman
2. Institute or center administrative position
3. Dean or other academic administrative post.
4. Other

21. What is the academic unit of your current appointment? In what type of academic unit did you receive your highest degree?

Unit of highest degree (if joint degree or joint dept., circle both)	Unit of current appointment (double circle primary appointment)	
1	1	Anthropology department
2	2	Economics department
3	3	Political science department
4	4	Psychology Department
5	5	Sociology department
6	6	Research institute or center
7	7	School of education
8	8	Medical school
9	9	Business school
10	10	Law school
11	11	Other

22. What is your highest academic degree?

1. Bachelor's
2. Master's
3. Ph.D.
4. Ed.D.
5. Other
6. None

23. In what year did you receive your highest degree?_____

24. What was the institution of your highest degree?_____

25. Could you indicate your two central teaching areas and two primary areas of research at present?

26. Have you authored or coauthored any of the following? [Ask for approximate number; include manuscripts accepted for publication].

_____Articles in professional journals and chapters in books
_____Scholarly books and monographs
_____Textbooks
_____Edited books
_____Reports for federal agencies, units, or commissions

In what year did your first professional publication, if any, appear? _____

POLITICAL INVOLVEMENT

27. Over the past five years have you been associated as a member or a consultant with any of the following:

1. A teacher's union or association
2. civic association
3. special caucus in the professional association
4. political party
5. a movement for social change
6. community action group
7. other

28. Sex 1. Male 2. Female