Division of Social & Economic Sciences

2007 Committee of Visitors (COV)

Combined Report

For the COV Meeting held at NSF March 8-10, 2007

Includes COV Reports for the Disciplinary Programs of SES:

Decision, Risk & Management Sciences
Economics
Innovation & Organizational Change
Law and Social Science
Methodology, Measurement, and Statistics
Political Science
Science & Society
Sociology

CORE QUESTIONS and REPORT TEMPLATE
For
FY 2007 NSF COMMITTEE OF VISITOR (COV) REVIEWS

Guidance to NSF Staff: This document includes the FY 2007 set of Core Questions and the COV Report Template for use by NSF staff when preparing and conducting COVs during FY 2007. Specific guidance for NSF staff describing the COV review process is described in Subchapter 300-Committee of Visitors Reviews (NSF Manual 1, Section VIII) that can be obtained at <www.inside.nsf.gov/od/oia/cov>.

NSF relies on the judgment of external experts to maintain high standards of program management, to provide advice for continuous improvement of NSF performance, and to ensure openness to the research and education community served by the Foundation. Committee of Visitor (COV) reviews provide NSF with external expert judgments in two areas: (1) assessments of the quality and integrity of program operations and program-level technical and managerial matters pertaining to proposal decisions; and (2) comments on how the results generated by awardees have contributed to the attainment of NSF's mission and strategic outcome goals.

Many of the Core Questions are derived from NSF performance goals and apply to the portfolio of activities represented in the program(s) under review. The program(s) under review may include several subactivities as well as NSF-wide activities. The directorate or division may instruct the COV to provide answers addressing a cluster or group of programs – a portfolio of activities integrated as a whole – or to provide answers specific to the subactivities of the program, with the latter requiring more time but providing more detailed information.

The Division or Directorate may choose to add questions relevant to the activities under review. NSF staff should work with the COV members in advance of the meeting to provide them with the report template, organized background materials, and to identify questions/goals that apply to the program(s) under review.

Guidance to the COV: The COV report should provide a balanced assessment of NSF's performance in two primary areas: (A) the integrity and efficiency of the ***processes*** related to proposal review; and (B) the quality of the ***results*** of NSF's investments that appear over time. The COV also explores the relationships between award decisions and program/NSF-wide goals in order to determine the likelihood that the portfolio will lead to the desired results in the future. Discussions leading to answers for Part A of the Core Questions will require study of confidential material such as declined proposals and reviewer comments. *COV reports should not contain confidential material or specific information about declined proposals.* Discussions leading to answers for Part B of the Core Questions will involve study of non-confidential material such as results of NSF-funded projects. The reports generated by COVs are used in assessing agency progress in order to meet government-wide performance reporting requirements, and are made available to the public. Since material from COV reports is used in NSF performance reports, the COV report may be subject to an audit.

We encourage COV members to provide comments to NSF on how to improve in all areas, as well as suggestions for the COV process, format, and questions. For past COV reports, please see http://www.nsf.gov/od/oia/activities/cov/covs.jsp.

Date of COV: March 8-10, 2007
Programs: All eight SES Programs
Division: Social and Economic Sciences (SES)
Directorate: Social, Behavioral & Economic Sciences (SBES)
Number of actions reviewed: Awards: 327 Declinations: 341 Other:
Total number of actions within Program/Cluster/Division during period under review: Awards: 1540 Declinations: 3771 Other: 978
Manner in which reviewed actions were selected: **A random sample of proposal jackets was made available to the COV members by program officers, supplemented by COV requests for specific proposals.**

Note:
All eight SES programs were evaluated concurrently on March 8-10, 2007. This is a combined report consisting of all of the disciplinary COV reports submitted for each program.

SES Advisory Members on 2007 COV

John King, Ph.D., Chair
Cecilia Conrad, Ph.D.
Shari Seidman Diamond, Ph.D.
Guillermina Jasso, Ph.D.

SES Committee of Visistors 2007

Decision, Risk, and Management Sciences Program

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Michael Dougherty, Ph.D.
Valerie F. Reyna, Ph.D.

Economics Program

Luis Fernandez, Ph.D.
John Haltiwanger, Ph.D.
Kenneth S. Rogoff, Ph.D.
Richard Portes, Ph.D.

Innovation and Organizational Change Program

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Sharon Kingsland, Ph.D.
Helen Longino, Ph.D.

Sociology Program
Vilna Bashi, Ph.D.,
John D. McCarthy, Ph.D.
John M. Kennedy, Ph.D.

SUMMARY REPORT FROM
SBE ADVISORY COMMITTEE MEMBERS ON THE SES COV

John Leslie King (Chair)
Cecilia Conrad
Shari Diamond
Guillermina Jasso

March 15, 2007

Background

Four members of the Advisory Committee (AC) of the Social, Behavioral and Economic Sciences (SBE) Directorate participated in the Committee of Visitors (COV) meeting for the Social and Economic Sciences (SES) Division, held at NSF March 8-10, 2007. They joined a group of 25 scholars working in teams conducting COV reviews for each of eight SES programs: Decision, Risk and Management Sciences (DRMS); Economics (Econ); Innovation and Organizational Change (IOC); Law and Social Science (L&SS); Methodology, Measurement and Statistics (MMS); Political Science (PoliSci); Science and Society (S&S); and Sociology (Socio). The four members from the SBE AC worked among the program COV groups on May 8 and 9, read the reports of those groups on May 10, and produced this report.

This report is not a comprehensive summary or recapitulation of the individual program COV reports; each of those reports constitutes a stand-alone document for use of program, division and directorate leadership. The purpose of this report is to provide an overall assessment of the SES Division based on a cross-cutting examination of the program COV reports, deliberations by the program COV members, and discussions among the four SBE AC members and the leadership of the SES Division and the SBE Directorate.

Overall Assessment

There are two broad purposes of this COV. The first is to assess the integrity and efficiency of the SES Division with respect to its baseline responsibilities of soliciting and appropriately reviewing proposals, making research awards that are likely to produce useful results, and meeting specific NSF goals such as broadening participation in scholarly research by geographic region and type of institution, as well as among individuals (e.g., race/ethnicity, gender). These are covered in the questions provided in parts A.1 through A.5 of the template given to each COV (See Table 1). The other is to assess the SES Division with respect to its performance in achieving the overall goal of producing knowledge beneficial to science and the national welfare. Information on this goal is provided by answers to questions in parts B and C of the template, as well as commentary accompanying the overall reports and discussions among program COV members, the SBE AC COV members, and the SES and SBE staff during the COV process.

Table 1: COV Chair's Summary of Program COV Reports

	Econ	DRMS	IOC	MMS	S&S	L&SS	PoliSci	Socio
Part A.1								
1	Y	Y	Y	Y	Y	*	Y	Y
2	Y	Y	Y	Y	Y	*	Y	Y
3	Y	Y2	Y	Y1	Y	*	Y	Y
4	Y	Y1	Y	Y	Y	*	Y	Y
5	Y	Y	Y	Y	Y	*	Y	Y
6	Y	Y	Y	Y	Y	*	Y	Y
7	NC	NC	C	C	C	*	NC	C
Part A.2								
1	Y	N	Y	Y1	Y	Y	Y1	Y
2	Y	NC	Y	Y	Y	Y	Y	Y
3	Y	NC	Y	Y	Y	Y	Y	Y
4	NC	NC	C	C	C	C	C	C
Part A.3								
1	Y	Y	Y	Y	Y	Y	Y	Y
2	Y	Y	Y	Y	Y	Y	Y	Y
3	Y	Y	Y	Y	Y	Y	Y	Y
4	Y	Y	DNA	Y	Y	Y	Y	NA
5	NC	C	C	NC	C	NC	NC	C
Part A.4								
1	Y	Y	Y	Y	Y	Y	Y	Y
2	Y	N1	Y	Y	Y	Y	Y	Y
3	Y	Y	Y	Y1	Y	N1	Y	Y
4	Y	Y	Y	Y	Y	Y	Y	Y
5	Y	Y1	Y	Y	Y	Y	Y	NA
6	Y	Y	Y	Y	Y	Y	Y	Y
7	Y	Y	Y	Y	Y	Y	Y	Y
8	Y	Y	Y	Y	Y	Y	Y	Y
9	Y	Y	Y	Y	Y	Y	Y	NA
10	Y	Y1	Y	Y	Y	Y	Y	Y
11	Y	Y	Y1	Y	Y	Y	Y	Y
12	Y	Y1	Y1	Y	Y	Y	NC	Y
13	NC	C	NC	NC	C	NC	NC	C
Part A.5								
1	Exc.	Exc.	VG	Exc.	VG	VG	Exc.	VG
2	NC	C	C	C	C	C	C	C
3	NC	C	C	C	C	C	C	C
4	NC	C	C	C	C	C	C	C

Legend				
	Y	Yes	N	No
	Y1	Yes, with exceptions	N1	No, with exceptions
	Y2	Often, not always	DNA	Data Not Available
	NA	Not applicable		
	C	Comment provided (NC is no comment)		
	*	Commentary rather than specific answers to questions		

As Table 1 shows, the program COV teams find the SES Division to be doing an excellent job with respect to integrity and efficiency. There are some exceptions to a uniformly positive assessment, but a careful reading of the actual comments provided by the program COV teams shows these exceptions to reflect either peculiar characteristics of a given program (e.g., a challenge resulting from a program's special mandate), or general concerns raised in one way or another by all programs (e.g., a need for increases in funding in order to accomplish goals). None of the project COV teams expressed integrity or efficiency issues that warrant remedial attention. In all, the SES Division is doing an outstanding job in this regard.

That said, there is room for improvement in the SES Division. The remainder of this report is devoted to three broad areas of concern identified by the SBE AC COV members.

Areas of Concern

Rather than reflecting deficiencies, the concerns expressed below represent conditions that create missed opportunities for SES, SBE, NSF, and the nation. SES can be contributing much more significantly. We (the members of the SBE AC on the COV team) recognize that these concerns are not easy to address. If they were, they would already have been resolved. Moreover, some of them will require considerable time and effort to address. Our intention is to alert the leadership of SES, SBE and NSF, and to encourage action on these matters.

There are three general areas of concern: administrative strategy, scientific challenges and impacts, and SES in the larger SBE and NSF context.

Administrative Strategy

The program COV teams uniformly compliment the quality of the administration of SES programs. In this, they echo the reports of previous COV teams. Unfortunately, the current review also reinforces earlier observations that administrative resources are insufficient to deal with the workload that SES programs *currently* face. We go beyond this assessment to suggest that these resources are particularly inadequate for the workload that the programs *ought to* face in order to rise to their full potential. NSF is justifiably proud that the vast majority of its funding goes directly to research and related activity, and only a small fraction goes to administration. However, there is a fine line between virtue and vice in this matter, and we believe that SES has crossed that line in the wrong direction.

No self-respecting researcher is going to make an appeal for administration over research, but as the expertise available in numerous SES programs clearly suggests, under-investment in administrative capacity is a bad administrative strategy. This is especially true when demands for administrative attention are rising in a non-linear manner relative to the core work (e.g., research itself) and the opportunities ahead require serious strategic attention that only administrative leaders can provide.

We believe there are two reasons for this situation. One is the rising demand for compliance with expectations regarding the handling of solicitations, proposals, awards, and post-award reviews. As new expectations have been added (e.g., for investigator attention to diversity, K-12 participation,

undergraduate research involvement), more administrative effort is required to meet these expectations throughout the life-cycle. The other is the additional administrative workload faced by program officers and others as it becomes more difficult to secure a sufficiently broad and deep set of proposal reviews. As the funding rate drops, the psychological contracts between the SES program officers and the research community become more fragile. Those writing proposals are also those who are called on to review proposals. When the likelihood of getting an award declines, the number of researchers writing proposals declines, and the number of people willing to participate in review declines. Increasing the percentage of proposals funded might reverse this trend, but doing so requires administrative effort as well as funding increases. In the meantime, a vicious circle is created in which program officers have to work harder simply to keep up. This is demoralizing to permanent staff and works against attracting the strongest people into rotator positions.

The other serious problem with the overload situation is missed opportunities that inevitably follow. NSF rightly prides itself on being a "bottom-up" enterprise that gathers the best ideas from the distributed community of scholars through various mechanisms (e.g., COVs, workshops) and synthesizes these ideas into new programmatic initiatives that improve the science being done. However, this community is also amorphous, and by itself cannot produce programmatic initiatives that stimulate new scientific endeavor *and* conform to the necessary protocols required by NSF. Such work must be done by the expert staff in the programs, divisions and directorates. If those people are preoccupied simply trying to keep up with the administrative workload, they cannot devote the necessary energy to collecting and synthesizing ideas to produce new programmatic visions and transforming them into reality. Something has to give, and in most cases it will be innovation. As we suggest below, this is a bad time for the SES Division to be hampered with respect to innovation.

Contrary to conventional wisdom, the low percentage of SES funding spent on administration does not necessarily encourage high efficiency. In our view, SES is already at a point where insufficient support for administration is hampering the nation's ability to get a full return from the research investment now being made in SES programs. This should be addressed immediately. Fortunately, SES itself contains programs with expertise in such matters. It might be a good idea to invest some SES resources in mobilizing and applying that expertise to the work of SES itself.

One other area of administrative strategy is the establishment and maintenance of an effective balance between permanent and rotator staff within SES. Permanent staff bring the advantages of organizational memory and institutional capability, not to mention many years of experience and lore in the sciences of their own expertise. However, permanent staff seldom have the opportunity to be directly involved in research on a regular basis themselves: they are vicarious researchers. Rotators, in contrast, are usually active researchers who come in from ongoing research programs at their respective institutions. They have a good grasp of the state of their fields, bring new ideas to SES, and also have their own social networks that can help broaden the social networks of the division. However, they have a limited understanding of how NSF works and they are usually not in place long enough to learn what they really need to know before they are planning to leave. The right balance of permanent staff to rotators is a vital goal of administrative strategy for SES. We cannot suggest exactly what that balance should be or how it might be achieved across the SES programs, but we encourage the SES Division and the SBE Directorate to consider how to achieve the appropriate balance, not only across programs, but also within programs.

Scientific Challenges and Impacts

Individual program COV reports make many useful observations about challenges and impacts at the program level. We have screened these observations and chosen for discussion a set of issues that also were raised in our conversations with program COV team members and with staff from the SES Division and the SBE Directorate. For each of the issues we discuss both challenges and impacts. We have five focal concerns under challenges and impacts: mechanics of disciplinary and cross-disciplinary research; broader and deeper advancement in science; theory, method and measurement; the role of oral tradition; and the need for training the next generation.

Mechanics of disciplinary and cross-disciplinary research. It was noted by more than one program COV team that research with roots in particular disciplinary traditions can be found not only in the core disciplinary programs (e.g., economics, political science) but also in so-called "cross-cutting" endeavors. These include cross-cutting programs (e.g., DRMS) and much broader NSF-wide initiatives such as Human and Social Dynamics. These cross-cutting programs and initiatives are a relatively recent innovation in NSF, and they are important to bolstering NSF's ability to bring scientific expertise to bear on topics important to national welfare. In addition, the funding mechanisms of NSF-wide cross-cutting initiatives can have important downstream impact on disciplinary funding, as support for the original cross-cutting initiatives reverts to base funding in the directorates and divisions. There was concern, therefore, that the COV mechanism for reviewing disciplinary programs does not allow for close examination of related disciplinary work going on in cross-cutting programs and initiatives. Typically, there is one COV to look at the disciplinary area, and another to look at the cross-cutting program. It is difficult to determine the quality and impact of the work in a given discipline across all the programs where such work is being done. Much has been said about the problems of disciplinary stovepipes but it is possible as well to create problems from cross-disciplinary stovepipes. Mechanisms are needed to avoid both vertical and horizontal stovepipes, or at least to link them together.

Broader and deeper impact. Several of the program COV teams observed that the "broader impact" criterion for evaluating proposals and the results of SES-sponsored research is problematic. Investigators and reviewers do not seem to have, or at least use, a common framework or vocabulary for describing broader impacts, making it difficult to ascertain and to communicate what the broader impacts of the research might be. This suggests a larger, more generic problem with framing the purpose as well as the payoffs of SES sponsored research. At some level, every research project contributes broadly, even if only to the immediately adjacent lines of research of which it is a part. And some projects contribute very broadly, not only to knowledge and capability within their own branch of science, but to all of the sciences. The question of what research projects *ought to contribute* seems unresolved, and if that is so, it will be difficult to evaluate their merits. We need a careful examination of how SES sponsored research projects might contribute to the overall scientific enterprise, and mechanisms for evaluating whether the impacts actually materialize in post-project assessments. Clearer guidelines should result in an improvement in the attention investigators give to this question in their proposals, and in the attention the reviewers give to this question in the review process.

Beyond the question of broader impact, there is a corollary concern with what we call deeper impact. By this we mean impact on the core capability and capacity of the SES fields themselves, especially with respect to building the full range of complements needed for the fields. One example of this has

to do with the relationship between theoretical work and empirical work. Some fields have been aggressive in developing both theoretical and empirical dimensions of their science, and the expectation that theory will contribute to empirical work and vice-versa is deeply embedded in routine practice. However, other fields have not developed such conventions, and either theory or empirical work dominates, sometimes to the near exclusion of the other. This report is far too short for a discourse on the connections between theoretical and empirical work and their contributions to the advancement of scientific knowledge; suffice it to say that the challenge is to have an appropriate balance of theoretical and empirical work in any given field of inquiry, with the two explicitly interconnected. We suggest that the SES Division undertake a careful assessment of this balance in all of its fields, with the intention of achieving a desirable balance in each field. We note that the Empirical Implications of Theoretical Models (EITM) initiative in Political Science is exemplary in this regard. Further, we add that many scholars of scientific practice are now adding a third complement to the tradition of theory and empirical work: computational approaches. This is one of the tenets at the heart of the NSF-wide focus on Cyberinfrastructure. There is ample evidence that computational approaches are already altering the character and quality of research in SES fields, sometimes in fundamental ways. This trend will continue, and probably accelerate. We suggest adding computational approaches to the assessment of balance recommended here.

Theory, method and measurement. The long-term importance of the complements – theory, empirical work, computational approaches – to the welfare of the SES fields cannot be overstated. In addition to the balancing noted above, it is important to build and sustain focused efforts aimed at creating, assessing, and promulgating theory, method and measurement capability in the fields. The Methodology, Measurement and Statistics (MMS) Program focuses appropriately on understanding, developing and enriching the methodological infrastructure relied on by all of the other programs in the division and beyond. As a secondary funder of many proposals, MMS has a unique perspective on the research and the methodological needs of researchers in SES. While retaining the current concentration on methodological development, MMS is well-positioned to assist in planning ways to stimulate and integrate theory and method in all SES fields. This expanded role would necessarily require additional resources for MMS. We do not suggest that this planning effort be reserved for MMS. The MMS program might be a focal point of such work, but the overall mission should be present in all SES programs. Moreover, this challenge should not be limited to SES. The SES Division has the potential (and, we would argue, the duty) to take on this larger role for the SBE Directorate, and where appropriate, for NSF and other research funding agencies.

Oral tradition. No one can question the vital role of the letters in the advancement of science. The ability to publish scientific findings broadly has been a hallmark of science since the founding of The Royal Society and the creation of the first scientific journals in the middle of the 17th Century. It is increasingly clear, however, that an exclusive focus on text-based communication overlooks a vital role of oral tradition in the conduct of science at all levels. The challenge is to develop mechanisms for transforming lore into written record, both within core disciplinary programs (and here permanent NSF program officers may be especially valuable) and more generally in the Science and Society program.

Training the next generation. The SES fields have a long tradition of doctoral education and consequent "on the job" development of researcher talent at the post-doctoral level. However, we believe that there is much that can and should be done to strengthen this in light of the opportunities and challenges facing the SES fields. Different commentators will bring different perspectives to this

issue; from our perspective, we see two specific needs. One is for stronger preparation in quantitative skills across the SES fields, starting with mathematics and extending into the wide array of quantitative techniques that have become so important to advancing these sciences. This is important even without the rising significance of computational approaches to research, but clearly computational approaches are very dependent on strong quantitative skills. The other need is for more post-doctoral education of the sort common in the natural sciences and engineering. Such appointments give young researchers the opportunity to work closely with established researchers in ongoing research programs, with fewer distractions of teaching and service than common to assistant professorships. This change will obviously require considerable time and effort to accomplish, given that few of the SES fields have anything like this tradition at present. Nevertheless, we believe it is an important goal and effort toward it should begin.

SES In the Larger SBE and NSF Context

The SES Division is under-leveraged, both within the SBE Directorate and within the NSF itself. By that we mean that the SES fields have a great deal to contribute to the welfare of the nation, but much of that potential goes untapped. An interesting example of this arose in some of the program COV discussions, where it was noted that the American Competitiveness Initiative does not make much sense without the inclusion of economics, sociology and other sociobehavioral sciences, yet these are conspicuously absent from the scientific research aspects of the ACI as currently articulated. The SES Division contains many areas of expertise that are important to the national welfare. Some of these opportunities are represented by multi-disciplinary, cross-cutting programs found within NSF; many others can be imagined without difficulty. How did this under-leveraged condition arise, and why does it persist?

There are undoubtedly many explanations for the current situation, starting with the most consistent point made among the program COV teams in this and in previous years: insufficient funding for SES programs. This argument is simple: insufficient funding makes it impossible to cover what each field thinks vital for its own interests, so broader interests are out of reach altogether. Every program review concludes with the plea for more funding. This is true not only in SES, but throughout the NSF. When every program asks for more funding on the grounds that good research is going unfunded, the net effect is all noise and no signal. Only by doing work that serves the broader interest can additional funding to build the core fields be obtained over the long run. The most significant increases in NSF funding in recent years have come through mobilization of the sciences – usually multiple fields of the sciences – around concerns of national importance. Eventually, the funding for these cross-cutting programs goes back into the directorates and divisions, to be allocated to programs. This builds strengths in the core programs. If done right, it also should build strengths within the core programs to work across boundaries and mobilize to address other issues of national concern.

The SES fields have a great deal to offer across many areas of national need. This fact alone creates great opportunities. Exploiting those opportunities requires a sophisticated strategy that, while building on the old notion of basic vs. applied research, goes beyond it to build a new and rich understanding of the interdependency of fundamental and practical knowledge. As progress is made in defining opportunities and strategizing to seek additional funding by addressing problems of national significance, equivalent strategic effort must be put into using new resources to build competence and knowledge in the core disciplines. With one must come the other.

There are many chicken-and-egg problems in the course we recommend. It is hard to know exactly where to begin, and how to bootstrap the processes required to get the whole effort going. We again make note of the fact that SES itself has a remarkable wealth of talent to aid in this challenging endeavor. Within the SES programs lie expertise in economics, social organization, politics, law, innovation, methodology, philosophy, and many other fields related to the challenges. The challenges articulated here are daunting, but they are not beyond the reach of the fields represented in SES.

Decision, Risk and Management Sciences

FY 2007 REPORT FOR
NSF COMMITTEES OF VISITORS (COVs)

Program: Decision, Risk and Management Sciences (DRMS)
Number of actions reviewed: Awards: 36 Declinations: 30 Other: 0
Total number of actions within Program during period under review: **Awards: 95 Declinations: 363 Other: 104**
Manner in which reviewed actions were selected: The jackets were selected randomly from a numbered list of all of the awards and declines made during the COV review period using a random number generator. In addition for each fiscal year two Dissertation Enhancement awards were randomly sampled using the above process.

PART A: INTEGRITY AND EFFICIENCY OF THE PROGRAM'S PROCESSES AND MANAGEMENT

Briefly discuss and provide comments for *each* relevant aspect of the program's review process and management. Comments should be based on a review of proposal actions (awards, declinations, and withdrawals) that were *completed within the past three fiscal years*. Provide comments for *each* program being reviewed and for those questions that are relevant to the program under review. Quantitative information may be required for some questions. Constructive comments noting areas in need of improvement are encouraged.

A.1 Questions about the quality and effectiveness of the program's use of merit review procedures: Provide comments in the space below the question. Discuss areas of concern in the space provided.

QUALITY AND EFFECTIVENESS OF MERIT REVIEW PROCEDURES	YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE[1]
1. Is the review mechanism appropriate? (panels, ad hoc reviews, site visits) Comments: The DRMS review process consists of individual (ad-hoc or external) reviews, followed by panel reviews. The use of both ad-hoc and panel reviews is desirable, since the panelists serve as additional reviewers, but can also evaluate the quality of the ad-hoc reviews (for example, if a reviewer misunderstood the purpose of a particular proposal), and have the benefit of	Yes, this is a model for government agencies (see 2001 Marburger OMB memo; item A.4.12

[1] If "Not Applicable," please explain why in the "Comments" section.

being able to deliberate among themselves. The panel then places each proposal in one of four categories: (a) must fund; (b) should fund; (c) decline with encouragement to resubmit; and (d) decline.	below)
2. Is the review process efficient and effective? Note: This section references statistics from the report provided to the Committee of Visitors by DRMS. Comments: According to the statistics provided by the program, the mean dwell time (from proposal submission to official notification regarding funding) was 5.5 months for proposals submitted in fiscal years 2004-2006, with three quarters of all proposals processed within six months, most of the remaining processed within nine months, and only 3% of all proposals requiring up to a year before official notification. This is comparable to statistics for the NSF as a whole. In cases where proposals took longer than six months to make their way through the review process, there were generally legitimate reasons for the delays, and informal notification was given to the principal investigators where possible. In particular, the strategic reasons to delay processing certain proposals (detailed on page three of the report to the committee) were not only justifiable, but also commendable. They exhibit excellent judgment and maximize the use of scarce resources. Of the 30 proposals that were randomly selected to be provided to the committee, all received multiple external reviews, except for one workshop proposal (since proposals for workshops are eligible for internal review if "the required number of reviews cannot be obtained from persons who are both knowledgeable and uninvolved"), and SGER proposals (which must be reviewed internally if there is insufficient time available to conduct a normal review process, or if they involve potentially transformative and controversial research). The combined reliance on external reviews and panel reviews is appropriately respectful of reviewer and panelist time, and avoids placing too much burden on any one group of reviewers.	Yes
3. Do the individual reviews (either mail or panel) provide sufficient information for the principal investigator(s) to understand the basis for the reviewer's recommendation? Comments: As might be expected from a heterogeneous group of volunteer	Not always

reviewers, some reviewers provide excellent and detailed comments, while others provide brief and terse reviews. Some reviewers also did not provide overall ratings—for example, if the reviewer did not feel qualified to rate a particular proposal. There is sometimes considerable variation between the ratings for a single proposal, making the role of the review panel critically important. As an aside, multiple ratings from a single reviewer (e.g., Excellent/Very Good) are classified as "R" in the review record, making this document more difficult to use than it might have been. We would recommend revising the review record so that it can accommodate multiple ratings.	
4. Do the panel summaries provide sufficient information for the principal investigator(s) to understand the basis for the panel recommendation? Comments: The panel summaries are generally good, but sometimes brief, which is to be expected given the number of proposals that panels often have to review. The panel summaries are particularly helpful when they include discussions of the reasons for inconsistencies among the external reviews. However, panel summaries do not always include this kind of information even when there are significant inconsistencies among the reviews, sometimes noting simply that the strength of the proposal team outweighs some reviewer concerns. For reasons of traceability, it might be helpful if the panel summaries include explicit discussion of the reasons for overruling negative reviews in decisions to fund a particular proposal, or overruling positive reviews in decisions not to fund. The panel summaries are also not fully comprehensive, and sometimes highlight only the most important of the reviewer comments. Therefore, principal investigators of rejected proposals should not rely exclusively on the panel summaries to understand why their proposals were rejected, and should make sure to read all of the reviews they receive.	Mostly yes, but with room for improvement
5. Is the documentation for recommendations complete, and does the program officer provide sufficient information and justification for her/his recommendation? Comments: Of the proposal folders that were reviewed by the committee, all included a complete set of reviews. The information provided by the program officers (Form 7) is sometimes relatively brief, but this may be acceptable, since the reviews and panel summaries are available to provide more detailed information. In cases where no external reviews were solicited, or two programs yielding conflicting recommendations, the review analyses provided clear explanations of the reasons for the recommendations from the program officers.	Yes

6. Is the time to decision appropriate? Comments: The Committee of Visitors interpreted this as "dwell time" (see question 2 above), interpreted as "Recommended Date" minus "Received Date." Particularly important for researchers who want to learn from the review process and revise their proposals, the time period for declines was almost never more than about six months, except in two cases, both of which involved conflicting reviews from two different programs. This supports the statement in the report by DRMS that dwell times exceeding six months often occurred because of complications in co-reviewing by multiple programs (or addenda and supporting materials required for processing of successful awards). Also, delays were typically for the purpose of maximizing the probability of funding. DRMS was also able to make decisions extremely quickly for proposals that were internally reviewed (SGER and workshop proposals).	Yes
7. Additional comments on the quality and effectiveness of the program's use of merit review procedures:	

A.2 Questions concerning the implementation of the NSF Merit Review Criteria (<u>intellectual merit</u> and <u>broader impacts</u>) by reviewers and program officers: Provide comments in the space below the question. Discuss issues or concerns in the space provided.

IMPLEMENTATION OF NSF MERIT REVIEW CRITERIA	**YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE[2]**
1. Have the individual reviews (either mail or panel) addressed both merit review criteria? Comments:	**NO**

[2] In "Not Applicable" please explain why in the "Comments" section.

The 2004 COV commented "…many individual reviewers have not explicitly or consistently addressed the merit review criteria, particularly the second criteria of broader impacts. Either the template is not easy to use or the reviewers are not attuned to it." This problem seems to have been corrected. A good proportion of the individual reviews explicitly comment on both the intellectual merit and the broader impacts of the proposed work. The 2004 COV report also cited that there was inconsistency in following the review guidelines: "The extent to which reviews are consistent with guidelines varies substantially from reviewer to reviewer. Some reviewers organize their reviews according to the NSF criteria, e.g., intellectual merit and broader impact. Others do not. In particular, broader impact seems to be given less attention. Reviewers need a clearer description of these criteria so there is consistency across the reviews. For example, where do issues such as methodology and research design fit into the current criteria?" The reviews still suffer from inconsistencies in following the guidelines. For example, responses to the 'broader impact' question vary widely from discussing the inclusion of minorities in the study and educational implications (mentoring of graduate and undergraduate students) to the implications of the work for society or the work place and potential for publishing in scientific journals. Most responses to the 'broader impacts' question are short in comparison to the 'intellectual merit' component.	
2. Have the panel summaries addressed both merit review criteria? Comments: Yes, generally the panel summaries discussed both the intellectual merits and the broader impacts. In fact, the panel summaries seemed to provide a better description of the broader impact than the individual reviews.	
3. Have the review analyses (Form 7s) addressed both merit review criteria? Comments: Yes, but to a lesser extent than the panel summaries.	

4. Additional comments with respect to implementation of NSF's merit review criteria:

The review criteria as currently implemented are too vague, without the addition of the information in footnotes 7 and 8 (as cited in the DRMS report to the COV). We propose adding those questions back into the review form.

In addition, we propose adding the following check-off box (yes/no) to the review form:

Does the proposed research program include undergraduates or graduate students in the conduct of research (i.e., not solely as research subjects)?

The National Science Foundation is the only government agency where "intellectual merit" (criterion 1) is the primary criterion for funding. This role should not be usurped or compromised. The applied fields depend heavily on the quality of basic science. Moreover, the economic prosperity of the nation depends on quality science, as does its international competitiveness. At present this role is in jeopardy. For example, the current requirement in research proposals to engage in educational and outreach activities is an unfunded mandate that reduces the resources devoted to scientific research. The nation risks losing talented scientists to other nations who have invested increasingly in basic research.

Educational research is a fundamental mission of EHR. We propose that NSF explore educational funding of teaching workshops and other educational initiatives involving DMRS scientists by drawing on EHR resources. DMRS research offers an opportunity to attract women and minority students into rigorous scientific research careers. For example, research on racial prejudice, environmental quality, and other social real-world social problems is are attractive to many young students. Targeting promising young students through EHR funded initiatives would help establish the next generation of scientists.

A.3 Questions concerning the selection of reviewers. Provide comments in the space

SELECTION OF REVIEWERS	**YES , NO, DATA NOT AVAILABLE, or NOT APPLICABLE**
1. Did the program make use of an adequate number of reviewers for a balanced review? The number of reviewers per proposal is excellent, an average of 4.73 mail reviews per proposal plus an additional two written reviews from panel members. Given the increasing challenges in securing reviewers, this is outstanding.	Yes

2. Did the program make use of reviewers having appropriate expertise and/or qualifications? The reviewers are generally excellent, including representation at the highest levels of scientific accomplishment and productivity, as well as a broad array of investigators from diverse institutions, including internationally. The key to this achievement is competent program directors that are able to make informed judgments about quality of reviewers. In addition to appropriately representing the current state of the field (indeed several fields, as DRMS is truly inter-disciplinary), the program directors also monitor trends in the types of proposals submitted to the program and add panelists with expertise in emerging areas. For example, the recent additions of neuroeconomics and neuropsychology are timely and important. Because the quality of the reviews vary by area, more effort should be made to find reviewers with appropriate expertise.	Yes
3. Did the program make appropriate use of reviewers to reflect balance among characteristics such as geography, type of institution, and underrepresented groups? Only 37% of mail reviews were completed by women and still fewer by minorities (only 7%), but data are incomplete. However, both statistics are roughly on a par with NSF-wide statistics. The panel, which is arguably the most important locus of diversity, has a remarkable 44% representation of women, despite the under-representation of women in the pool of potential panel members (i.e., senior scientists in DRMS fields). The program directors should be commended for this achievement. Difficulty in obtaining women and minority reviewers reflects an inadequate pool, and is an NSF-wide issue. Although the panel contains highly qualified members in general, the need to represent balance across content areas and methodologies drives the average level of quality down slightly. We would encourage the program directors to adhere somewhat less strictly to a numerical quota for panelists in particular areas. As mentioned below, extending the term lengths or allowing panelists to serve more than one term, may help maintain DMRS maintain representations across areas, while maintaining quality. The statistics in the Report to COV were extremely helpful in documenting and justifying the geographical and institutional diversity of awards. It is clear that awards reflect applications, and representation of particular states or institutions fairly reflects the quality of applications. It would be desirable to increase the quality of applications from different geographical areas and from non-traditional institutions, but quality should remain paramount.	YES

4. Did the program recognize and resolve conflicts of interest when appropriate? Program directors assiduously document and enforce COIs; indeed, this often occupies a sizeable amount of time prior to and during panel meetings. If interpreted overzealously, COIs have the potential to lower the quality of reviews because they can eliminate reviewers and panelists with in-depth expertise. The current approach strikes an appropriate balance that is conscientious but not overzealous.	YES

5. Comments:
The procedure described in the Report to the 2007 Committee of Visitors (hereafter, Report to COV) is impeccable. It combines the in-depth expertise of the DRMS staff (Leland, O'Connor, & Meszaros) with an objective and thorough search procedure for obtaining reviewers.

Membership on the panel is one-time only and very short (only two years), providing an undue constraint on who can be asked to be on the panel. Quality of panel members is high overall, but this is due to Herculean efforts by the program directors. In the interest of maintaining quality panelists, DMRS staff should consider lengthening terms to three years, allow people to serve two or more non-contiguous terms, and/or allowing for terms of different lengths.

Given the increase in the number of proposals, it has also become a challenge to find sufficient, highly qualified reviewers. Program directors are meeting that challenge, but it is taking more human resources to do so. The reviewers are distributed widely across different institutions.

High quality (ideally permanent rather than rotating) program directors are essential in achieving these impressive results. We would encourage the program directors to adhere somewhat less strictly to a numerical quota for panelists in particular areas. It would be desirable to increase the quality of applications from different geographical areas and from non-traditional institutions, but quality should remain paramount.

Decrease the number of young reviewers. They are likely to have less time to review proposals and lack relevant experience. A few such qualified reviewers are appropriate to give them experience in preparing their own proposals in the future. As the pendulum has swung away nationally from quality considerations for reviewers and panelists (focusing on a number of important, but less crucial characteristics), it becomes ever more important to prioritize expertise as a criterion for selecting reviewers and panelists.

Latent Semantic Analysis can be used to select reviewers within DRMS, and identify reviewers outside of DMRS whose expertise is relevant to DMRS proposals. A sample reference can be found below.

Dumais, S. T. and Nielsen, J. (1992), "Automating the assignment of submitted manuscripts to reviewers." In N. Belkin, P. Ingwersen, and A. M. Pejtersen (Eds.), *SIGIR'92: Proceedings of the 15th Annual International ACM SIGIR Conference on Research and Development in Information Retrieval*. ACM Press, pp.233-244. --- using LSI to match reviewers and papers

A.4 Questions concerning the resulting portfolio of awards under review: Provide comments in the space below the question. Discuss areas of concern in the space provided.

RESULTING PORTFOLIO OF AWARDS	APPROPRIATE, NOT APPROPRIATE[3], OR DATA NOT AVAILABLE
1. Overall quality of the research and/or education projects supported by the program. Comments: The overall quality of the research documented in the program highlights is exceptional (see for example pages 22-26 of the report to the committee). Although the bulk of funded research is of high quality, there was some variability across proposals. Panel summaries and review analyses appeared to be appropriately sensitive to the weaknesses or speculative nature of some proposals—for example, awarding smaller budgets than requested for some high-risk research (e.g., 0551121, Spencer, George Washington University).	Overall excellent
2. Are awards appropriate in size and duration for the scope of the projects? Comments: No, in general. The problem is particularly severe for highly interdisciplinary work; it is difficult to recruit a group of top-notch researchers from a variety of fields and get them to commit substantial time to a joint project for the size of awards typically available within the program. Consideration should be given to the duration of awards, because three years or less is insufficient to reap the full benefits of an investment. Specifically, startup activities typically occupy much of the first year, and the search for new funding must begin in the third year, leaving less time for active scholarship. Therefore, we recommend that awards be lengthened to four or five years, at least for senior researchers with strong proposals and established track records.	No, not in general
3. Does the program portfolio have an appropriate balance of: • Innovative/high-risk projects?[4]	Yes

[3] If "Not Appropriate," please explain why in the "Comments" section.

Comments: Yes; in fact, DRMS has been a hothouse for innovative research that has eventually been picked up by other, more traditional programs; see for example the experience with behavioral economics. In addition, the SGER mechanism provides an appropriate way to get this kind of work funded. However, innovation should not come at the expense of theory.	

4. Does the program portfolio have an appropriate balance of: • Multidisciplinary projects? Comments: Decision making as a field of study is inherently multidisciplinary (including such diverse disciplines as medicine, psychology, economics, management, informatics, mathematics, statistics, and law). Funding such multidisciplinary work is one of the purposes of the DRMS program. This is reinforced by the fact that many of the principal investigators funded by the program are themselves interdisciplinary in their approaches. An exceptional example of multidisciplinary work is that of McKelvey (032312, U. of Montana), which includes a multi-national team of physicists, mathematicians, and economists, investigating sustained fishing practices in the face of environmental variability. An interesting result of this research is that information can be valuable when fishing fleets cooperate, but counterproductive when they compete for resources. This finding has striking similarities to the 'tragedy of the common.' DMRS contributes substantially to proposals submitted to other programs. However, those programs contribute substantially less to DRMS proposals (see pages 14-15 of the report to the committee). We would applaud efforts by NSF leadership to redress this imbalance.	Yes
5. Does the program portfolio have an appropriate balance of: • Funding for centers, groups and awards to individuals? Comments: The program portfolio is heavily weighted towards awards to individuals, with a small but significant number of collaborative research	Yes, with caveats

[4] For examples and concepts of high risk and innovation, please see Appendix III, p. 66 of the Report of the Advisory Committee for GPRA Performance Assessment, available at <www.nsf.gov/about/performance/acgpa/reports.jsp>.

awards to groups that are spread across multiple institutions. This is appropriate given the limited budget of the program. However, some types of work can only be done by larger centers. Increasing the DRMS budget to accommodate more group and center proposals would offer the opportunity to increase high-quality, high-relevance interdisciplinary research. NSF-wide special initiatives would also be another mechanism through which groups of decision-making researchers could make valuable contributions.	

6. Does the program portfolio have an appropriate balance of: • Awards to new investigators? Comments: Based on the data presented on pages 18-19 of the report to the committee, grants to new investigators appear to make up roughly one third of the overall program awards. This seems if anything high relative to the population of researchers in the field; this is a valuable but high-risk investment in the future. NSF also has the flexibility to give special consideration for small awards to new investigators who may not yet be ready to write a competitive proposal for a full-fledged, multi-year award.	Yes
7. Does the program portfolio have an appropriate balance of: • Geographical distribution of Principal Investigators? Comments: Yes; see data on page 12 of the report to the committee.	Yes
8. Does the program portfolio have an appropriate balance of: • Institutional types? Comment: The geographical distribution of principal investigators tracks extremely well the locations of major research universities and the sources of applications; see pages 13-14 of the report to the committee. Funding rates for proposals from EPSCOR states are low, but this appears to be due to the poor quality of some applications. NSF leadership should consider whether the EPSCOR program is effective in accomplishing the highly desirable goal of increasing research participation, and if not, how it can be improved.	Yes

9. Does the program portfolio have an appropriate balance of: • Projects that integrate research and education? Comments: Training of future scientists should be considered an essential educational mission. In this area, DRMS is doing well. In the opinion of this particular committee, it is inappropriate to expect that research grants will in general integrate extensive additional involvement in education. Educational activities are obviously meritorious, but should be funded in their own right. See item A.2.4.	Yes

10. Does the program portfolio have an appropriate balance: • Across disciplines and subdisciplines of the activity and of emerging opportunities? Comments: The 2004 Committee of Visitors stated that: "A large number of funded proposals concentrate on controlled experiments with well-specified hypotheses. In the sample folders that we looked at, controlled experiments were funded at a higher rate than other methods such as interviews, direct observation, [and] content analysis of documents, survey, or econometric analyses of archival data. It may be desirable to take more risks with non-experimental projects, and to ensure representation on the panel and in the reviewer pool of respected researchers with a broader set of approaches." While an appropriate balance across disciplines and methodologies is obviously a good idea, methodological rigor should not be compromised. Therefore, the 2007 Committee strongly takes issue with the statements about methodology in the 2004 report. It is also surprising that DRMS does not have any projects funded under the NSF priority area on Mathematical Sciences, especially given the quantitative proficiency of many people in this field. In fact, of the project titles listed on pages 27-29 of the report to the committee, a surprisingly small percentage seem to involve substantial reliance on mathematical modeling.	Yes, with caveats
11. Does the program portfolio have appropriate participation of underrepresented groups? Comments: The representation of awards overall is commensurate with the pool of applicants. The representation of women as principal investigators or	Yes, given the nature of the pool

co-principal investigators is similar to NSF-wide statistics, which is about 30%. Minorities submit very few applications to this program (only 7% on average); however, the funding rate does not differ from that of other proposals. NSF leadership should explore additional opportunities to increase the pool of rigorously (e.g., quantitatively) trained minority investigators. Graduate research fellowships and minority post-doctoral fellowships require candidates to initiate the proposal at relatively early stages of their careers. Supplementary funding on existing grants would provide a mechanism for PIs to add minority graduate students, postdoctoral fellows, and collaborators more efficiently and perhaps at less cost.	
12. Is the program relevant to national priorities, agency mission, relevant fields and other customer needs? Include citations of relevant external reports. Comments: DRMS research is of core relevance to issues of national security (such as terrorism), environmental quality, economic competitiveness, medical decision making, and other major national priorities. In fact, DRMS research is of high scientific importance as well as practical relevance. Because of the latter, DRMS should be a high priority for projects that translate the fruits of research into practical applications. Creative thought should be given to ways of marketing DRMS research results to the various practitioner communities and mission agencies. The Society of Judgment and Decision Making has endorsed this position, as exemplified in *Psychological Science in the Public Interest*, and *Rising above the Gathering Storm* (about the importance of science to economic prosperity). There are a number of agencies disseminating research funds that do not use adequate peer review. DRMS should explore opportunities to undertake the peer-review process on behalf of these agencies through memos of understanding.	Yes
13. Additional comments on the quality of the projects or the balance of the portfolio: There appears to be a precipitous decline in the funding rate for SGER proposals, from 83% to 75% to 22% in the most recent year of funding. It would be worth exploring the reasons for this.	

A.5 Management of the program under review**: Please comment on:**

1. Management of the program.

Comments: The program officers (Leland, O'Connor, and Meszaros) are first-rate. It is an enormous asset to the program to have officers that are both administratively skilled and experts in research in their own right, with complementary areas of interest and expertise.

2. Responsiveness of the program to emerging research and education opportunities.

Comments: DRMS has frequently been at the forefront of emerging research trends. As noted above, this should not come of expense of methodological rigor.

One interesting suggestion is to use data mining techniques such as latent semantic analysis and topics analysis to identify emerging trends in research before the researchers themselves may become aware of them. This would help the program officers characterize the nature of what is being funded, identify intersections between fields, stimulate new areas of collaboration, and advocate more effectively for new funding for emerging areas.

3. Program planning and prioritization process (internal and external) that guided the development of the portfolio.

Comments: As noted in item A.4.4 above, DRMS contributes more to funding of proposals from other programs than those programs contribute to. We would applaud efforts by NSF leadership to redress this imbalance. The effort proposed above for use of data mining to characterize research portfolios might be one useful tool in this effort.

4. Additional comments on program management: NSF is fortunate to have attracted such accomplished and devoted scholars to serve in government.

PART B: RESULTS OF NSF INVESTMENTS

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The NSF mission is to:

- Promote the progress of science;
- Advance national health, prosperity, and welfare; and
- Secure the national defense.

To fulfill this mission, NSF has identified four strategic outcome goals: Discovery, Learning, Research Infrastructure, and Stewardship. The COV should look carefully at and comment on (1) noteworthy achievements based on NSF awards; (2) ways in which funded projects have collectively

affected progress toward NSF's mission and strategic outcome goals; and (3) expectations for future performance based on the current set of awards.

NSF investments produce results that appear over time. Consequently, the COV review may include consideration of significant impacts and advances that have developed since the previous COV review and are demonstrably linked to NSF investments, regardless of when the investments were made.

To assist the COV, NSF staff will provide award "highlights" as well as information about the program and its award portfolio. Since relevant aspects of the Stewardship goal are included in Part A, the COV is not asked to respond to that goal in Part B.

B. Please provide comments on the activity as it relates to NSF's Strategic Outcome Goals. Provide examples of outcomes ("highlights") as appropriate. Examples should reference the NSF award number, the Principal Investigator(s) names, and their institutions.

B.1 OUTCOME GOAL for Discovery: ***"Foster research that will advance the frontier of knowledge, emphasizing areas of greatest opportunity and potential benefit and establishing the nation as a global leader in fundamental and transformational science and engineering."***

Comments:

Research can be transformational both in terms of transforming research and in terms of transforming social, health, and national security policy. Research supported by DMRS has been transformative in both respects.

Certainly, DRMS research advances the frontier of knowledge, as eloquently described on pages 22-26 of the report to the committee. Indeed, DRMS has been an incubator for innovative research that has not yet found a home in traditional programs. Moreover, the fundamental importance of judgment and decision making is transparent to both laypeople and policy makers. We will organize our remarks on advancing the frontiers of knowledge into three categories, which correspond to those in the report to the committee—namely, individual decision making, group and market decision making, and risk.

Individual decision making.
Within the area of individual decision making, we are presently seeing a movement away from traditional descriptive and psychophysical approaches to judgment and decision making, to a new emphasis on underlying causal mechanisms, as illustrated, for example, by the work of Elke Weber, Levin and colleagues, Dan Simon, and Ellen Peters. These causal mechanisms include both emotion and cognitive processes, such as memories and mental models. We believe that this type of work is advancing the frontier, although of course it is also worth continuing to support high-quality traditional foundational work such as that of Luce (0452754, UC-Irvine).

Another emerging area is the field of neuropsychology, neuroeconomics, and the neurological basis of decision making more broadly. At present, this work is being driven largely by the availability of new technology, although it is becoming more hypothesis-driven and theoretically motivated. To the

extent that this research is not merely descriptive and correlational, it will advance the frontiers of knowledge. It is essential for the NSF to support such research. However, given the cost of the technology, the return on the dollar will often be less than that of strictly behavioral research. Therefore, it is essential to ensure that such work is only of the highest quality, and to seek additional sources of funding for it.

Group Decision Making

Another large category of research funded by DRMS focuses on strategic interactions ranging from bilateral negotiation to market interactions. Two examples of innovative work are Ledyard (0338732) and Prelec (0519141). Ledyard's approach involves using the classic Turing test to evaluate descriptively good models of learning in games. This addresses the issue of evaluating competing models under conditions where traditional model comparison procedures fail. Ledyard's approach is innovative because it does not test models against one another, but rather sorts humans from emulators. Prelec's work is innovative in that his technique is able to reliably detect objective truth embedded in noisy group responses, even when the majority of respondents endorse an incorrect answer. Work by Ross (044710) and conflict resolution in Ireland and the Middle East (0447110, Ross, Stanford) and Atran (0433735, Atran, U. of Michigan) addressed issues of globalization and cross cultural interactions.

Risk.
A third category of research funded by DMRS focuses on risk. Understanding the determinants of risk perception is an important question. So too is understanding how risk communications might be tailored to most effectively inform people regarding the nature of the risks they face. Although the current funding trends within the risk are not transformative scientifically, it has the potential for being transformational in terms of social policy. We believe, however, that deep theoretically driven work on risk has the potential for being transformational scientifically, as well; such work should be encouraged.

Two examples of interesting work within this area are that of Trumbo (0433410) and Cole (0422544). Trumbo's work examines health risk perception of environmental hazards through the application of geographic information systems (GIS) to combine geospatial information with behavioral and health-related data. This research focuses on whether and how living near environmental hazards affects perception of cancer risks. Cole's work uses the empirically supported "terror theory" to predict how people's policy-related attitudes on topics such as civil liberties and deference to authority change in response to events that invoke thoughts of mortality, such as 9-11, and empirically tests these predictions. (Note: Trumbo is an EPSCOR state and Cole is at a minority serving institution.)

B.2 OUTCOME GOAL for Learning: ***"Cultivate a world-class, broadly inclusive science and engineering workforce, and expand the scientific literacy of all citizens."***

Comments:

Virtually all DMRS grants include students (graduate and undergraduates) as collaborators in the research, thereby training of next generation of scientists and engineers in the field. The apprenticeship model is an irreplaceable educational experience for future scientists and engineers.

The DRMS program encourages workforce development in a number of different ways. First, future young investigators are developed through undergraduate and graduate research assistantships whose responsibilities range from data collection to data organization and analysis. Second, young talent is cultivated through special grant categories such as doctoral dissertations and career awards. Third, researchers funded by DMRS have traditionally disseminated their research widely through both disciplinary and interdisciplinary publications, as well as publicly accessible outlets. For example, work by Danny Kahneman has appeared in Science (Kahneman, Krueger, Schkade, Schwarz, & Stone, *Science*, 2006), and work entitled "Better decision through science" by John Swets, Robin Dawes, & John Monahan appeared in Scientific American (Swets, Dawes, and Monahan, Oct. 2000). Other work has been featured in popular books (e.g., Babcock & Laschever "Women Don't Ask" 2003; Bazerman & Watkins, "Predictable Surprises" 2004). The diversity and visibility of the publication outlets is a paragon for improving scientific literacy both among the research community and the general public.

DRMS also invested in the future of the field by funding two ambitious projects designed to improve education. Along with the Ethics and Values program, DRMS funded Nancy Tuana's (0452643, Tuana, Penn. State Univ.) project designed to integrate ethics into graduate training in the environmental sciences. By itself, DRMS sponsored a conference organized by Frank Yates (0529766, Yates, U. of Michigan) at the University of Michigan to improve methods of teaching decision behavior. This activity launched the Interuniversity Decision Behavior Teaching Repository. (http://www.lsa.umich.edu/psych/decision-consortium/teachingdb/index.html). See also the references to Birnbaum's work on education under B.3 below, and the work of Siniscalchi (0453088, Northwestern) on the role of parental supervision in children's learning.

In addition, some DMRS research directly addresses issues of inclusiveness and gender and racial disparities (e.g., 0213474, Babcock, Carnegie Mellon; 0351184, Mullainathan, National Bureau of Economic Research; 0555049, Dawes, Carnegie Mellon). Other research has addressed issues of globalization and cross cultural interactions (e.g. 9910156, Medin, College of Menominee Nation; 9981762 and 0433735, Atran, U. of Michigan; 0350709, Deck, U. of Arkansas), and conflict resolution in Ireland and the Middle East (0447110, Ross, Stanford). Note that the College of the Menominee Nation is a minority serving institution and Arkansas is an EPSCOR state; DRMS has also supported other work at minority-serving institutions, undergraduate institutions, and EPSCOR states.) DMRS also supported cross cultural research on risk attitudes in Sweden, which lost 12,000 people in the recent tsunami (0526020, Vastjfall and colleagues, Decision Science Research Institute).

B.3 OUTCOME GOAL for Research Infrastructure: *"Build the nation's research capability through critical investments in advanced instrumentation, facilities, cyber infrastructure and experimental tools."*

Comments:
An early example of infrastructure resulting from DRMS support is the constructed-preference methodology for survey research developed by Gregory and colleagues. More recently, National Science Foundation has provided funding to Michael Birnbaum to support three Advanced Training Institutes (ATI) on the new methods and techniques by which one can conduct research on Social Psychology via the WWW (http://psych.fullerton.edu/mbirnbaum/www/). Birnbaum's NSF funded work also has led to two books with implications for training and education (Birnbaum, Psychological Experiments on the Internet (2000), Birnbaum Introduction to Behavioral Research on the Internet (2001).

Other research tools developed and/or improved under DRMS support include methods for use in decision-support systems (0326468, Arkes, Ohio State; 0438447, Crittenden, Arizona State; 0079872, Pate-Cornell, Stanford), survey methods for values elicitation (9975200, Morgan, Carnegie-Mellon; 0351946, Carson, Air Force Academy; 0443708, Eckel, Virginia Polytechnic), probability estimation and elicitation (0317867, Clemen, Duke University; 0216897, Morgan, Carnegie-Mellon; 0519141, Prelec, MIT; 9521914, Fischhoff, Carnegie-Mellon), cost/benefit analysis (0324746, Levy, Harvard), and even merit review of scientific proposals (0109250, Arkes, Ohio State). (Note that the Air Force Academy is an undergraduate institution.) Some of the work cited above is already being applied; for example, NASA has adopted the framework developed by Pate-Cornell for decision making under resource constrains. DRMS has also supported working groups, workshops, and tutorials on applications of computer-science and mathematical methods to the social sciences (see for example 0351165, Roberts, Rutgers), and spearheaded the development of a method for evaluating electronic voting systems (0314161, Roberts, Rutgers).

PART C. OTHER TOPICS

C.1: Please comment on any program areas in need of improvement or gaps (if any) within program areas.

The COV did not find any significant gaps. Moreover, we believe it is appropriate for research to be driven by investigator instantiated ideas. At the same time, the COV recognizes that investigator initiated research can oftentimes be used to identify emergent topics. Data mining techniques such as LSA and Topics analysis could be useful for proactively identifying funding trends within the agency. Rather than targeting specific topic areas for funding, we argue that the emphasis should remain on quality. Nevertheless, there are many government-wide funding opportunities that should be administered by NSF, such as basic research related to national security and terrorism, and on the gathering, interpretation, and use of intelligence (including the synthesis of expert opinion).

Developmental psychology impacts on reasoning, problem solving, understanding of economic concepts, altruism, impulsivity, risk perception, and risky behavior have also been neglected in NSF. Synergies between developmental psychology (childhood, adolescence, young adults, and the aging)

and research on judgment and decision making would yield useful basic theoretical insights into judgment and decision making in adults, and would also have useful broader implications for real-life risk taking in areas ranging from terrorist recruitment to educational attainment.

C.2: Please provide comments as appropriate on the program's performance in meeting program-specific goals and objectives that are not covered by the above questions.

Funding of workshops should be done with care, and directed towards those workshops that directly affect the conduct of research (e.g., training workshops on mathematical psychology), and fruits of which are ultimately represented in the archives of science.

C.3: Please identify agency-wide issues that should be addressed by NSF to help improve the program's performance.

Latent Semantic Analysis (LSA) can be used to help generate potential proposal reviewers, and to identify cross-cutting themes and proposals that might qualify for joint funding.

DRMS contributes more to funding of proposals from other programs than those programs contribute to DRMS (see pages 14-15 of the DMRS report to the COV).

NSF leadership should consider whether the EPSCOR program is effective in accomplishing the highly desirable goal of increasing research participation, and if not, how it can be improved.

NSF leadership should explore opportunities to increase the pool of mathematically and quantitatively trained minority investigators. For example, supplementary funding should be made available on existing grants to add minority graduate students, postdoctoral fellows, and collaborators.

Explore opportunities to increase the translation, dissemination, and implementation of high quality research.

C.4: Please provide comments on any other issues the COV feels are relevant.

None

C.5: NSF would appreciate your comments on how to improve the COV review process, format and report template.

The support for the DMRS COV was outstanding. However, future COVs should be provided technology to facilitate file transfer between COV members (e.g., memory sticks, and electronic drop boxes). Providing the abstracts for all proposals prior to the meeting (or in hard copy upon arrival) would also be useful.

SIGNATURE BLOCK:

Valerie Reyna
Vicki Bier

Michael Dougherty

_____

For the Decision, Risk and Management Sciences (DRMS) COV
Valerie Reyna
Chair

Economics

FY 2007 REPORT FOR
NSF COMMITTEES OF VISITORS (COVs)

Program: Economics (ECON)
Number of actions reviewed: Awards: 45 Declinations: 45 Other: 0
Total number of actions within Program during period under review: **Awards: 374 Declinations: 877 Other: 505**
Manner in which reviewed actions were selected: The jackets were selected randomly from a numbered list of all of the awards and declines made during the COV review period using a random number generator.

Executive Summary

The Economics Program at the NSF continues to do a superb job in helping stimulate important new research in economics. The NSF continues to play a core role in supporting economics research that is transforming both the discipline and society. Whether it be the design of internet auctions on EBay, US Federal Reserve interest rate policy, or the explosion of modern financial markets, NSF-funded Economics research has framed the core of many key ideas that shape modern society and globalization. Despite prolonged years of flat budgets, the Economics Program at NSF has maintained the excellence and integrity of its process. Other countries, even those such as the UK where per researcher expenditures considerably outstrip those in the US, still seek to emulate the NSF review process. The excellence and professionalism of the NSF Economics Program staff is extraordinary, the program is in good health from this perspective.

The main problems in Economics stem from a dismaying long-term trend decline in inflation-adjusted funding, a fact that has already been underscored by the previous two COVs in 2001 and 2004. As a result, the Economics Program has had to turn down very promising proposals. The success rate is now hovering around 20%, well below long-term averages despite declining numbers of proposals (decline of around 10%). The success rate has recovered some from a few years ago but it is not clear this represents an improvement given the decline in the number of proposals and the continuing problems with salary caps and RA amount caps in awards. An open question is whether the low success rate as well as low award amounts have caused PIs to be discouraged from submitting proposals to NSF.

The 2004 COV sought to remedy this situation by recommending a separate division for Economics within the NSF. That idea was rejected by the NSF, but as far as we can tell, no alternative approach was adopted to remedy the core problem. Given the influence of basic economic research in universities, in policymaking, as well as in finance and business, it is puzzling indeed that the size of the NSF program in economics is so miniscule, $20 million dollars per year.

The fact that there are no economists in the senior management of NSF has implications not only for how the current NSF "pie" is divided, but also for how the NSF advocates for economic research

with Congress. Advances in economics, many funded over the years by the NSF, have played a huge role in shaping public policy and innovation in today's era of globalization. US dominance in financial globalization, for example, builds integrally on innovative Nobel prize winning work on options pricing ("rocket-science finance"), the core of which was funded over the years by the NSF. We acknowledge that some of the blame lies with economists for not advocating and lobbying in Congress as other disciplines do, but NSF structure must also be partly to blame.

A striking case in point is the NSF's recent competitiveness initiative. It is very troubling to the COV that the competitiveness initiative does not include input from economics whatsoever. "Competitiveness" is fundamentally an economic concept. Over the years, countries that proceeded with "competitiveness initiatives" without the checks and balances of proper economic analysis have wasted tens of billions of dollars. Economists who study international trade, industrial organization, and productivity growth have developed key insights on how to think about these problems, what works, and what doesn't. Parenthetically, among all of America's industries, financial services is perhaps the largest, most competitive and innovative, and produces the most income. Despite growing challenges from Europe and elsewhere, this will probably continue to be the case for years to come. NSF-funded economics research has long played a role in keeping the US on the forefront of this industry. So from many angles, having a "competitiveness" program that excludes economics is simply absurd.

A final point we would like to emphasize deals with the COV process itself. The funding for the core Economics program, which we have been asked to review, has been relatively flat for many years. We understand that much of the marginal increase in funding for economists has come through inter-disciplinary initiatives such as Human and Social Dynamics. Yet, the COV process does not permit any comparison of the marginal project rejected by Economics, and the marginal project funded by one of the initiatives. We do not have the data or the files on the initiatives to make any comparisons. We can only point out that most of the transformative and key ideas that have come out of the Economics profession in recent decades have come through the core Economics Program of the NSF. We suspect this will be true in the future, although we are prepared to be convinced otherwise. Certainly, the COV process should be designed so that fields can give judgments on this issue. Thus, we recommend that future COVs have access to decisions on economics proposals across all of NSF.

PART A. INTEGRITY AND EFFICIENCY OF THE PROGRAM'S PROCESSES AND MANAGEMENT

Briefly discuss and provide comments for *each* relevant aspect of the program's review process and management. Comments should be based on a review of proposal actions (awards, declinations, and withdrawals) that were *completed within the past three fiscal years*. Provide comments for *each* program being reviewed and for those questions that are relevant to the program under review. Quantitative information may be required for some questions. Constructive comments noting areas in need of improvement are encouraged.

A.1 Questions about the quality and effectiveness of the program's use of merit review procedures. Provide comments in the space below the question**.** Discuss areas of concern in the space provided.

QUALITY AND EFFECTIVENESS OF MERIT REVIEW PROCEDURES	YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE[5]
1. Is the review mechanism appropriate? (panels, ad hoc reviews, site visits) Comments: The Program's quality derives from its reliance on a competitive peer review process that is well managed. The Economics Program receives proposals twice yearly, with target dates of January 18th and August 18th. As proposals arrive, the program staff examines them for compliance with NSF regulations. If a proposal has violated requirements in some way, the principal investigators are given a few days to bring the proposal into compliance. A few days after the target date, a spreadsheet with the proposals sorted by subfield is sent to the Economics Panel. Panel members are asked to indicate which proposals fall within their expertise and interest on the spreadsheet and email it back to Economics Program staff. This information is used to assign each proposal to two or more panelists for review. In addition, Program directors electronically request a "mail" review from six topic area experts for each proposal. The Panel members and the topic area experts provide written assessments of the Intellectual Merit, potential Broader Impacts, and a summary rating of the proposed project. The Economics program convenes a meeting of its Panel in November and April each year for two days to discuss the proposals. During the panel meeting, the panel discusses the most important positive and negative features of each proposal, composes advice to the PIs about how the work might be improved, and evaluates the relative importance of the proposal compared with the other proposals in this round of competition. The panel places each proposal in one of five categories: must fund (highest priority); should fund (high priority); could fund (marginal); decline; and no consensus. The comments and evaluations contained in the mail reviews are a vital component of the panel discussion as well as vital feedback to the PIs. In addition, the panel composes a "Panel Summary" for the PI that explains what the panel considered the key factors leading to its rating of the proposal. The anonymous reviews and the panel summaries are made	YES

[5] If "Not Applicable" please explain why in the "Comments" section.

available to the PIs when final decisions have been reached. After the panel meeting, the Program Directors decide the disposition of each proposal, making their recommendations to the Division Director. The Program Directors seek to determine the intellectual merit and broader impact of each proposal based on the written reviews and the panel discussion. They may also consider balance in the portfolio in terms of composition by topic areas, risk, career stage and institution type of PIs, and other factors.

Both in the selection of panels and in the review process, Program Directors should bear in mind that in some areas, there are sharp differences and opinion on what constitutes good research. There is a risk that panelists may seek to impose their own research agendas to the point of overriding external reviews. Rather, they should focus on priorities across fields in which there are highly rated proposals.

On the whole, the COV found this process to be working very effectively. The COV discussed the inherent challenges of the peer review process for providing balanced reviews, for supporting areas not well represented on any given panel, and for supporting research that is challenging existing paradigms. The COV's review found this process to be working well in part because of the high quality of the Program Director. As in all programs at NSF, the Program Directors use the peer review panels as advisory and strive to support the best and brightest research areas even if not well represented by current panels. The current Program Director for Economics does this exceptionally well and the COV both expressed its support for the current Program Director and support for taking steps to insure this direction of the program will continue in the future.

2. Is the review process efficient and effective? YES

Comments:

FY	# of Proposals	Mean Dwell Time	0-6 Months	>6-9 Months	>9-12 Months	>12 Months
2004	441	5.1	83.4%	12.9%	3.4%	0.2%
2005	412	5.2	84.7%	11.7%	2.7%	1.0%
2006	399	4.5	96.5%	2.5%	0.5%	0.5%
Average		4.9	88.2%	9.0%	2.2%	0.6%
NSF-wide		5.49	77.0%			

The reviews are completed on a timely basis and there have been significant improvements over the last 3 years.

3. Do the individual reviews (either mail or panel) provide sufficient information YES

for the principal investigator(s) to understand the basis for the reviewer's recommendation? Comments:	
4. Do the panel summaries provide sufficient information for the principal investigator(s) to understand the basis for the panel recommendation? Comments: In addition to the useful project specific comments, the typical panel summary includes a statement along the following lines which helps put the decision into context: "Your proposal was one of 204 proposals evaluated by the Economics Advisory Panel at its meeting in April 7-8, 2006. At this Panel meeting the panel placed 18 proposals in the must fund category, 70 in the "should fund" category, and 20 in the "could fund" category. The panel recommended declinations for 95 proposals. The panel could not reach a consensus on 1 proposal. At the last Panel meeting in November 2005, the Panel placed 15 proposals in the "must fund" category (15 awards), 88 in the "should fund" category (38 declines/50 awards) , and 39 in the "could fund" category (38 declines/ 1 award). The panel recommended declinations for 88 proposals (88 declines). The Panel could not reach a consensus on 2 proposals (1 award/1 decline)."	YES
5. Is the documentation for recommendations complete, and does the program officer provide sufficient information and justification for her/his recommendation? Comments:	YES

6. Is the time to decision appropriate? Comments: See data in 2 above. Also Economics program officers provide informal information to the vast majority of PIs about the status of their proposal within several weeks of the panel meeting. Program directors notify PIs by e-mail as soon as decisions have been made on their proposals and if there is a delay of more than a few weeks in processing the decline or award, program officers will, if asked by the investigator, e-mail copies of the review and the panel summary to the investigator.	YES
7. Additional comments on the quality and effectiveness of the program's use of merit review procedures: None	

A.2 Questions concerning the implementation of the NSF Merit Review Criteria (<u>intellectual merit</u> and <u>broader impacts</u>) by reviewers and program officers. Provide comments in the space below the question. Discuss issues or concerns in the space provided.

IMPLEMENTATION OF NSF MERIT REVIEW CRITERIA	**YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE[6]**
1. Have the individual reviews (either mail or panel) addressed both merit review criteria? Comments: Statistics from NSF's Information System	YES

FY		Awards	Declines	Total
2004	Number of Proposals	108	332	440
	Average Number of Reviews	6.63	6.76	6.73
	% of Reviews that Met Both Criteria	56%	54%	54%
2005	Number of Proposals	124	288	412

[6] In "Not Applicable" please explain why in the "Comments" section.

	Average Number of Reviews	7.1	6.15	6.43	
	Average of Reviews that Met Both Criteria	70%	68%	69%	
2006	Number of Proposals	142	257	399	
	Average Number of Reviews	7.59	7.26	7.38	
	% of Reviews that Met Both Criteria	77%	72%	74%	

The two criteria are addressed more frequently than indicated by the statistics. Our data collection system only counts reviews as having addressed both criteria if the reviewer inserts some text into one box labeled Intellectual Merit and some text into another box labeled Broader Impact. Reviewers often place their entire review in only one these fields or in the "Summary" field, in which case the system treats the review as not having addressed the criteria.

In examining a sample of jackets, the COV found that both criteria are in typically met in the reviews.

2. Have the panel summaries addressed both merit review criteria?
Comments:

YES

3. Have the *review analyses* (Form 7s) addressed both merit review criteria?
Comments:

YES

4. Additional comments with respect to implementation of NSF's merit review criteria:

A.3 Questions concerning the selection of reviewers. Provide comments in the space below the question. Discuss areas of concern in the space provided.

SELECTION OF REVIEWERS	YES , NO, DATA NOT AVAILABLE, or NOT APPLICABLE[7]
1. Did the program make use of an adequate number of reviewers? Comments: See Table A.3.1 below	YES
2. Did the program make use of reviewers having appropriate expertise and/or qualifications? Comments: Mail review: For each proposal, six expert reviews are solicited. Appropriate reviewers are identified through keyword citation searches (largely Web of Science, SSRN and Google Scholar), searches of conference program participants and indexes and references in relevant books and articles, Program Director knowledge and recommendations from the PIs themselves. (PI's are permitted to recommend reviewers through FastLane. During compliance check, if they have made no suggestions, we often ask them if they would like to take the opportunity to do so.). The Program Director seeks reviewers who have been working on the topic in the proposal, including top researchers in the area and people who have published in the area quite recently. Not all reviewers are expected to be knowledgeable about all aspects of a proposal, but we seek to ensure that the panel and the program officer hear from someone knowledgeable about each important aspect of the work. The Program Director also seeks a balance of young scholars, reviewers from groups underrepresented in our sciences, and reviews from different types of	YES

[7] If "Not Applicable" please explain why in the "Comments" section.

institutions (particularly non-R1 schools) in order to help build awareness about NSF and the grants process in these populations.

Some concern is raised by the fall in the mail review hit rate, as seen in Table A.3.1. We recommend that the Program Directors should seek to identify the causes and consequences of this decline. In particular, is there any pattern in the decline (e.g., is the fall greatest from those in top-rated research institutions)? Is there any pattern in the resulting evaluation of proposals (do proposals with fewer reviews fare poorly – or better)?

Panel review:

Panelists, of course, are also reviewers. Given that the range of topics addressed in ECON proposals is broad, varied, and frequently interdisciplinary, panelists representing a broad range of expertise are chosen. In addition, since it is important that panelists rise above their personal areas of interest and compare the scientific potential of proposals from many different areas, we seek panelists who have demonstrated commitment to the well being of the field and who have developed good perspective as a result of leadership in editorial and other professional capacities.

ECON Panelists, 2004-2006

Name	Institution	Name	Institution	
Alessandra Casella	Columbia	Ricardo Caballero	MIT	
Alexander Field	University of Santa Clara	Robert M. Schwab	University of Maryland	
Ann Carlos	University of Colorado	Roberto Chang	Rutgers	
Ann Harrison	University of California, Berkeley	Serena Ng	University of Michigan	
Rosa Matzkin	Northwestern University	Steve Berry	Yale	
Caroline Hoxby	Harvard	Susan Athey	Stanford	
Christina Paxson	Princeton	Tim Cason	Purdue University	
Daniel Levin	The Ohio State University	William Evans	University of Maryland	
Douglas Davis	Virginia Commonwealth University	Wolfgang Pesendorfer	Princeton	
Douglas Gale	New York University	Xiaohong Chen	New York University	
Eric van Wincoop	University of Virginia	Yaw Nyarko	New York University	

Glenn Ellison	MIT	Narayana Kocherlakota	Stanford		
Guido Imbens	University of California, Berkeley	Patrick Kehoe	University of Minnesota		
James Stock	Harvard	Petra Todd	University of Pennsylvania		
John Ham	The Ohio State University	Philip Reny	University Chicago		
Joseph Altonji	Yale	Price Fishback	University of Arizona		
Kyle Bagwell	Columbia	Rachel Croson	University of Pennsylvania		
Larry Ausubel	University of Maryland	Lise Vesterlund	University of Pittsburgh		
Lee Ohanian	University of California, Los Angeles	Mario Crucini	Vanderbilt University		
Mark Isaac	Florida State University				

3. Did the program make appropriate use of reviewers to reflect balance among characteristics such as geography, type of institution, and underrepresented groups?[8] Comments: See Figures A.3.1 below	YES
4. Did the program recognize and resolve conflicts of interest when appropriate? Comments: When a staff member or panelist has a conflict of interest with a PI or institution, they are not assigned to review that proposal and must leave the room when it is discussed. If the program officer has a conflict of interest with a proposal, another program officer handles its disposition completely. If a panelist submits a proposal within a year of their last panel service, that proposal is not brought to the panel. Instead, it is reviewed via mail review and, when appropriate, discussed by some other SBE panel. When mail reviews are solicited, the program officer examines PI and co-PI bios in order to avoid sending proposals to individuals with conflicts of interest. Also,	YES

[8] Please note that less than 35 percent of reviewers report their demographics last fiscal year, so the data may be limited.

the letter soliciting reviews asks the reviewer to consider whether they might have a conflict of interest and to alert the program officer if this is the case. Reviewers do sometimes note conflicts of interest that were omitted from the PIs' bios or missed by the program officer.

For all proposals from NBER we attach a statement identifying all NBER associate reviewers and explaining why it was necessary to use them. We do not use anyone who holds an administrative position at the NBER to review proposals from NBER. The following template was used for NBER proposals in the spring of 2004.

ATTACHMENT TO FORM 7

The Use of Reviewers Associated with the NBER

The following panelists and outside reviewers are NBER associates or fellows. None hold administrative positions at NBER:

Panelists
Joseph Altonji
Kyle Bagwell
Steve Berry
Ricardo Caballero
Price Fishback
Narayana Kocherlakota
Christina Paxson

Outside Reviewers

The Office of the General Council was consulted at the urging of the Inspector General as to the appropriateness of using panelists and outside reviewers who are NBER associates to evaluate NBER proposals. Almost every NBER associate is a full-time faculty member at a major research university. The NBER is an umbrella organization, similar to any professional organization, not the primary institution of employment for its associates. The membership consists of the leading economists in the U.S. doing empirical research in the major fields in economics. At present, there are over 500 members.

It was explained to the OGC that these reviewers are needed to evaluate NBER proposals because almost every expert in certain fields is associated with the Bureau. The OGC ruled in accordance with CFR Par. 2635.502(d) that NBER associates may be used "because the Government's interest in the evaluation of this proposal outweighs the concern that a reasonable person would question the integrity of NSF's programs and operations". The OGC also ruled that associates

who are on the board of directors, hold office, or head a study section should be considered as conflicted because they are too closely tied to the organization.	
5. Additional comments on reviewer selection:	

Table A.3.1

Proposals with mail review only							
FY	Number of Proposals	Mail Reviews Requested	Mail Reviews Returned	Mail Reviews Declined	Mail Reviews with a Conflict of Interest	Mail Review Hit Rate	Avg Number of Reviews per Proposal (Mail Review Only)
2004	3	20	15	5	0	75.00%	5.00
2005	5	42	33	9	0	78.57%	6.60
2006	12	101	79	16	6	78.22%	6.58
Total	20	163	127	30	6	77.91%	6.35

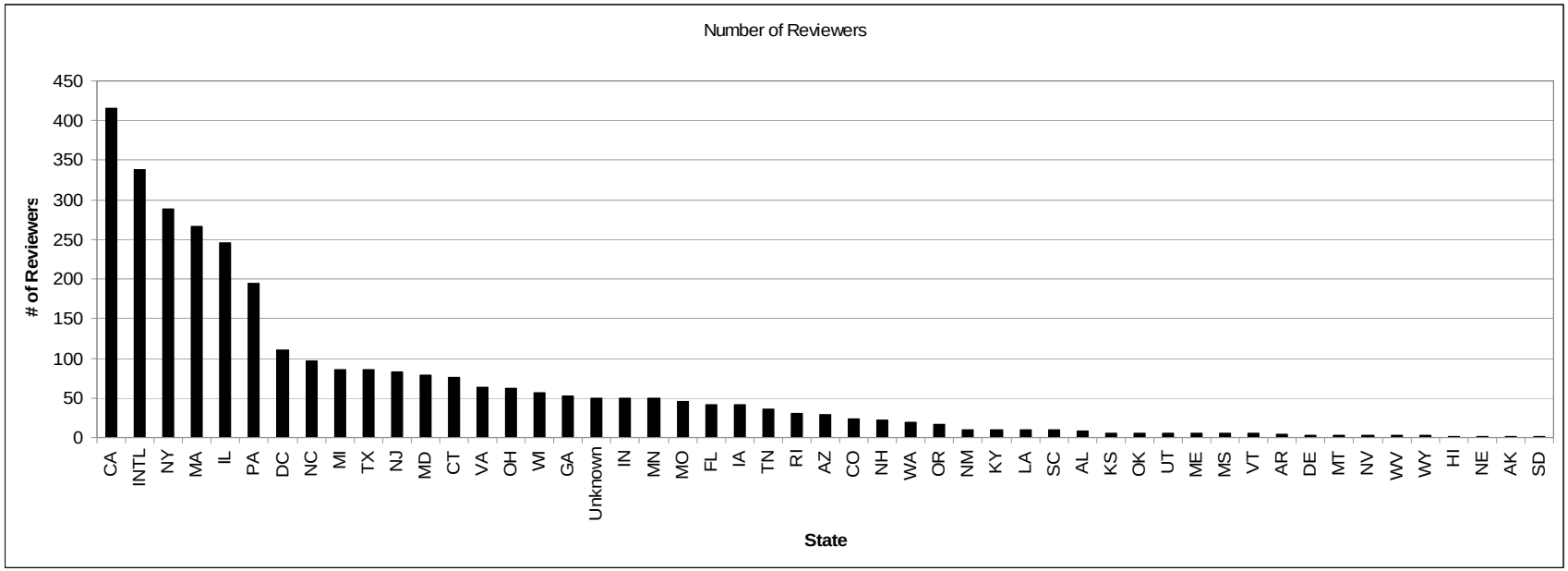
Proposals with Mail & Panel Review									
FY	Number of Proposals	Panel Reviews	Panel Reviews per Proposal	Mail Reviews Returned	Mail Reviews Requested	Mail Reviews with a Conflict of Interest	Mail Reviews Declined	Mail Review Hit Rate	Avg Number of Reviews per Proposal (Mail Review)
2004	434	1019	2.35	1937	2613	11	665	74.13%	4.46
2005	380	905	2.38	2102	2417	16	297	86.97%	5.53
2006	368	918	2.49	1443	2457	4	1010	58.73%	3.92
Total	1182	2842	2.40	5482	7487	31	1972	73.22%	4.64

Proposals With Panel Review Only			
FY	Number of Proposals	Panel Reviews	Panel Reviews per Proposal
2004	13	48	3.69
2005	22	66	3.00
2006	21	75	3.57
Total	56	189	3.38

Internal Review Only	
FY	Number of Proposals
2004	10
2005	11
2006	8
Total	29

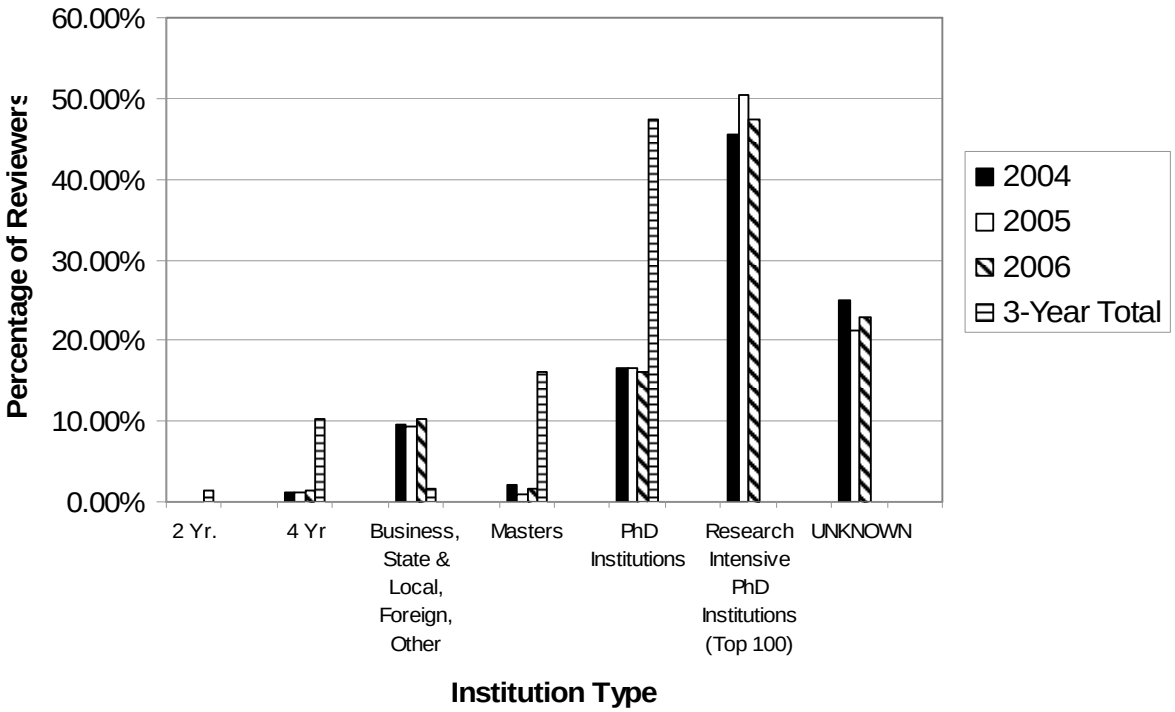
3. Figures A.3.1[9]

Geographical Distribution of Reviewers



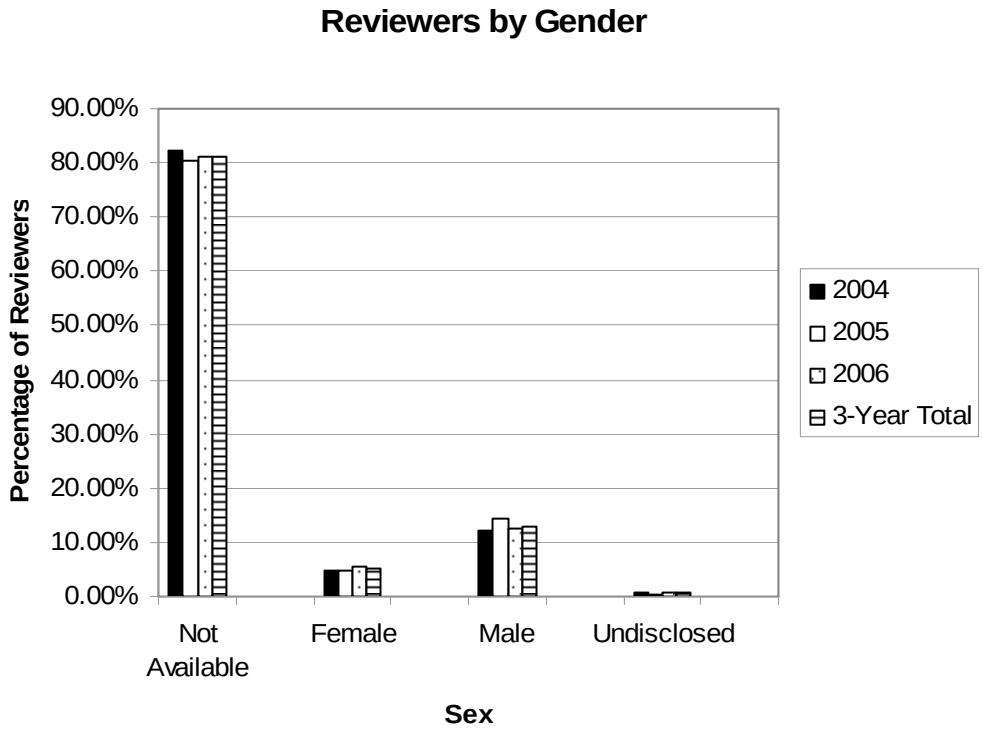
Distribution of Reviewers by Institution Type

[9] Please note that less than 35 percent of reviewers reported their demographics last fiscal year, so the data may be limited.


Reviewer by Institution Type
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Percentage of Reviewers
2 Yr.
4 Yr
Business, State & Local, Foreign, Other
Masters
PhD Institutions
Research Intensive PhD Institutions (Top 100)
UNKNOWN
Institution Type
2004
2005
2006
3-Year Total

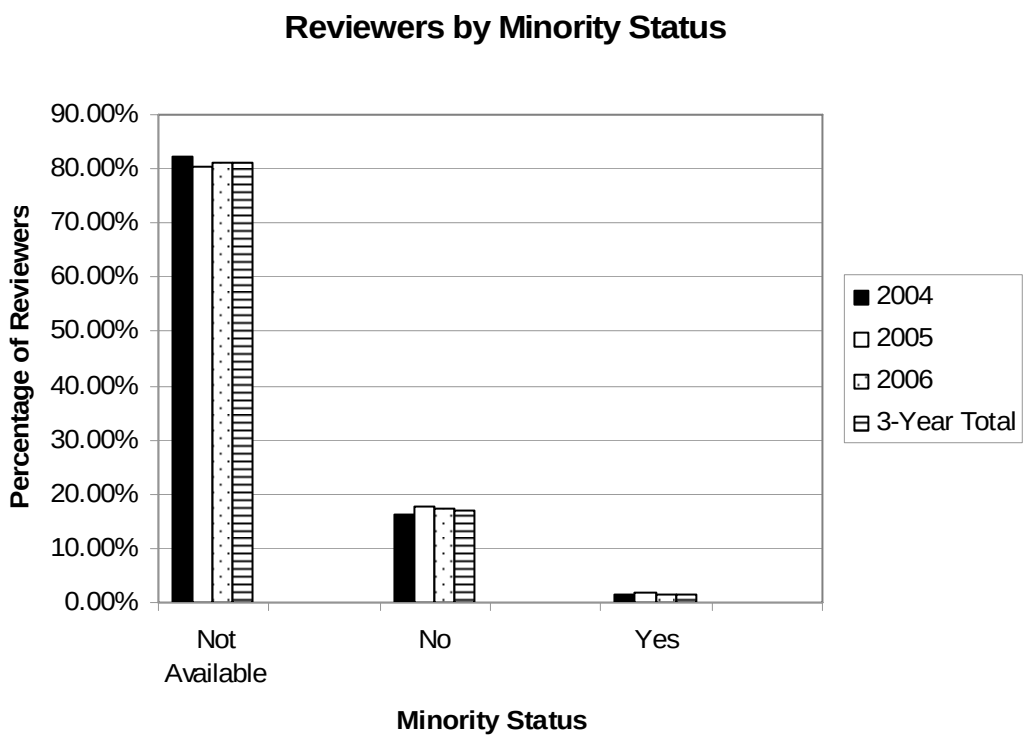
NOTE: less than 35% of reviewers reported their demographic information last year. Thus, data on sex and minority status of reviewers is low in reliability.

Distribution of Reviewers by Sex



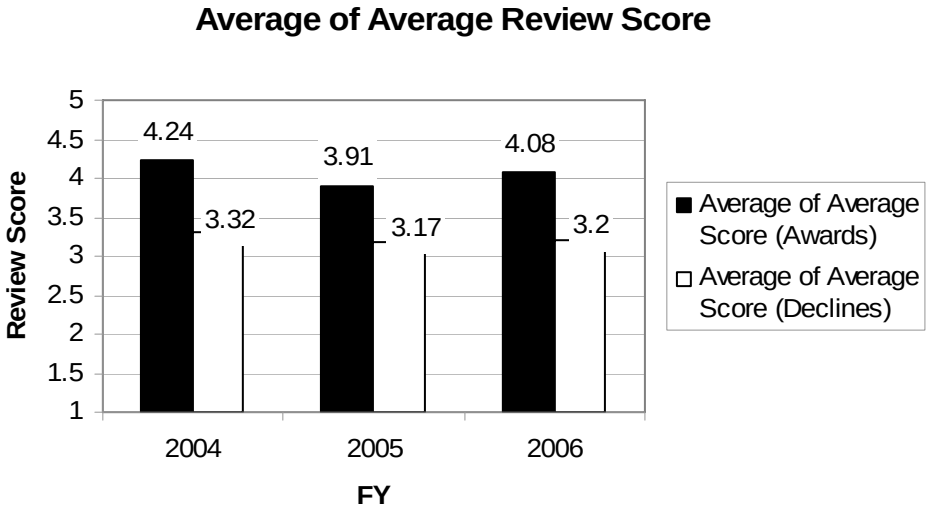
Distribution of Reviewers by Minority Status*

NOTE: less than 35% of reviewers reported their demographic information last year. Thus, data on sex and minority status of reviewers is low in reliability.



*Per NSF guidelines, "minority" includes only groups that are underrepresented in the scientific community: American Indian, Alaskan Native, Black, Hispanic, and Pacific Islander. Asian and White (not of Hispanic origin) are excluded.

A.4 Questions concerning the resulting portfolio of awards under review. Provide comments in the space below the question. Discuss areas of concern in the space provided.

RESULTING PORTFOLIO OF AWARDS	
1. Overall quality of the research and/or education projects supported by the program. Comments:  	YES
2. Are awards appropriate in size and duration for the scope of the projects? Comments: The table below provides summary statistics. A continuing problem is that the salary caps are binding for essentially all economists (starting salaries for new PhDs in 2007 are now about $100K) and the research assistant caps are also binding.	YES

FY	All Awards	Total
2004	Number of Awards	99
	Average Annual Dollars	$71,901.55
	Average Award Total	$203,826.66
	Average Requested Amount	$354,784.01
	Average Award Duration	2.68
2005	Number of Awards	109
	Average Annual Dollars	$69,232.74
	Average Award Total	$192,825.21
	Average Requested Amount	$225,297.63
	Average Award Duration	2.54

2006	Number of Awards	115
	Average Annual Dollars	$76,000.20
	Average Award Total	$205,064.99
	Average Requested Amount	$252,531.87
	Average Award Duration	2.57
Total	Number of Awards	323
	Average Annual Dollars	$72,460.20
	Average Award Total	$200,554.99
	Average Requested Amount	$267,190.95
	Average Award Duration	2.60

FY	Dissertations	Total
2004	Number of Awards	8
	Average Annual Dollars	$13,138.80
	Average Award Total	$14,890.58
	Average Requested Amount	$19,295.50
	Average Award Duration	1.01
2005	Number of Awards	11
	Average Annual Dollars	$9,059.60
	Average Award Total	$10,818.09
	Average Requested Amount	$21,469.45
	Average Award Duration	1.19
2006	Number of Awards	11
	Average Annual Dollars	$8,857.73
	Average Award Total	$8,857.73
	Average Requested Amount	$9,794.09
	Average Award Duration	0.95
Total	Number of Awards	30
	Average Annual Dollars	$10,352.04
	Average Award Total	$11,522.13
	Average Requested Amount	$16,853.02
	Average Award Duration	1.05

FY	SGERs	Total
2004	Number of Awards	2
	Average Annual Dollars	$17,960.30
	Average Award Total	$17,960.30
	Average Requested Amount	$23,041.00
	Average Award Duration	1.00
2005	Number of Awards	4
	Average Annual Dollars	$77,967.58
	Average Award Total	$111,152.75
	Average Requested Amount	$107,865.00
	Average Award Duration	1.08

2006	Number of Awards	2
	Average Annual Dollars	$34,694.00
	Average Award Total	$59,388.00
	Average Requested Amount	$59,388.00
	Average Award Duration	1.50
Total	Number of Awards	8
	Average Annual Dollars	$43,540.63
	Average Award Total	$62,833.68
	Average Requested Amount	$63,431.33
	Average Award Duration	1.19

FY	CAREER Awards	Total
2004	Number of Awards	2
	Average Annual Dollars	$62,523.62
	Average Award Total	$401,533.00
	Average Requested Amount	$422,997.50
	Average Award Duration	5.00
2005	Number of Awards	2
	Average Annual Dollars	$80,763.80
	Average Award Total	$403,819.00
	Average Requested Amount	$629,090.00
	Average Award Duration	5.00
2006	Number of Awards	2
	Average Annual Dollars	$80,036.30
	Average Award Total	$400,181.50
	Average Requested Amount	$513,086.00
	Average Award Duration	5.00
Total	Number of Awards	6
	Average Annual Dollars	$74,441.24
	Average Award Total	$401,844.50
	Average Requested Amount	$521,724.50
	Average Award Duration	5.00

FY	Regular Grants	Total
2004	Number of Awards	89
	Average Annual Dollars	$77,394.34
	Average Award Total	$216,366.84
	Average Requested Amount	$383,407.39
	Average Award Duration	2.78
2005	Number of Awards	91
	Average Annual Dollars	$76,562.15
	Average Award Total	$215,830.11
	Average Requested Amount	$248,631.63
	Average Award Duration	2.73
2006	Number of Awards	100

	Average Annual Dollars	$84,131.27		
	Average Award Total	$225,659.00		
	Average Requested Amount	$253,689.35		
	Average Award Duration	2.72		
Total	Number of Awards	280		
	Average Annual Dollars	$79,362.59		
	Average Award Total	$219,285.32		
	Average Requested Amount	$295,242.79		
	Average Award Duration	2.74		

3. Does the program portfolio have an appropriate balance of: • Innovative/high-risk projects?[10] Comments:	YES
4. Does the program portfolio have an appropriate balance of: • Multidisciplinary projects? Comments: See Tables A.4.1 below	YES
5. Does the program portfolio have an appropriate balance of: • Funding for centers, groups and awards to individuals? Comments:	YES
6. Does the program portfolio have an appropriate balance of: • Awards to new investigators? Comments: We note that the table below shows an encouraging upward trend in funding rates for proposals with new PI involvement. We hope this can be sustained.	YES

FY		Awards	Declines	Total	Funding Rate
2004	Number of Proposals with new PI involvement	40	224	264	15%

[10] For examples and concepts of high risk and innovation, please see Appendix III, p. 66 of the Report of the Advisory Committee for GPRA Performance Assessment, available at <www.nsf.gov/about/performance/acgpa/reports.jsp>.

	% of Proposals with new PI involvement in Total Number of Proposals	37%	67%	60%	*	
	Number of Proposals with no new PI involvement	68	108	176	39%	
	Total Number of Proposals	108	332	440	25%	
2005	Number of Proposals with new PI involvement	65	197	262	25%	
	% of Proposals with new PI involvement in Total Number of Proposals	52%	68%	64%	*	
	Number of Proposals with no new PI involvement	59	91	150	39%	
	Total Number of Proposals	124	288	412	30%	
2006	Number of Proposals with new PI involvement	68	182	250	27%	
	% of Proposals with new PI involvement in Total Number of Proposals	48%	71%	63%	*	
	Number of Proposals with no new PI involvement	74	75	149	50%	
	Total Number of Proposals	142	257	399	36%	
Total	Number of Proposals with new PI involvement	173	603	776	22%	
	% of Proposals with new PI involvement in Total Number of Proposals	46%	69%	62%	*	
	Number of Proposals with no new PI involvement	201	274	475	42%	
	Total Number of Proposals	374	877	1251	30%	

YES

7. Does the program portfolio have an appropriate balance of:
   - Geographical distribution of Principal Investigators?

Comments:

State	Awards	Declines	Total	Funding Rate	% of Whole
CA	64	123	187	34%	14.95%
NY	41	103	144	28%	11.51%

MA	33	105	138	24%	11.03%		
PA	25	56	81	31%	6.47%		
NJ	21	38	59	36%	4.72%		
IL	20	71	91	22%	7.27%		
CT	14	17	31	45%	2.48%		
NC	12	41	53	23%	4.24%		
TX	10	35	45	22%	3.60%		
AZ	9	5	14	64%	1.12%		
MN	9	21	30	30%	2.40%		
WI	9	24	33	27%	2.64%		
MD	8	30	38	21%	3.04%		
DC	7	32	39	18%	3.12%		
IN	6	14	20	30%	1.60%		
VA	6	23	29	21%	2.32%		
OH	5	19	24	21%	1.92%		
MI	4	25	29	14%	2.32%		
RI	4	19	23	17%	1.84%		
TN	3	17	20	15%	1.60%		
CO	2	7	9	22%	0.72%		
FL	2	13	15	13%	1.20%		
KS	2	1	3	67%	0.24%		
OR	2	3	5	40%	0.40%		
KY	1	2	3	33%	0.24%		
ME	1	2	3	33%	0.24%		
NH	1	5	6	17%	0.48%		
NM	1	2	3	33%	0.24%		
VT	1	2	3	33%	0.24%		
AL	0	4	4	0%	0.32%		
AR	0	3	3	0%	0.24%		
DE	0	5	5	0%	0.40%		
GA	0	11	11	0%	0.88%		
HI	0	2	2	0%	0.16%		
IA	0	6	6	0%	0.48%		
LA	0	2	2	0%	0.16%		
MS	0	6	6	0%	0.48%		
MO	0	7	7	0%	0.56%		
MT	0	2	2	0%	0.16%		
ND	0	1	1	0%	0.08%		
OK	0	1	1	0%	0.08%		
PR	0	1	1	0%	0.08%		
SC	0	8	8	0%	0.64%		
SD	0	2	2	0%	0.16%		
UT	0	5	5	0%	0.40%		
WA	0	4	4	0%	0.32%		
WV	0	1	1	0%	0.08%		

WY	0	2	2	0%	0.16%

YES

8. Does the program portfolio have an appropriate balance of:
   - Institutional types?

Comments:

- Institutional types?

Institution Type	FY 2004				FY 2005				FY 2006			
	Awards	Declines	Total	Funding Rate	Awards	Declines	Total	Funding Rate	Awards	Declines	Total	Funding Rate
4 Yr	1	6	7	14%	2	10	12	17%	0	7	7	0%
Business, State & Local, Foreign, Other	22	44	66	33%	24	42	66	36%	33	39	72	46%
Masters	0	8	8	0%	2	11	13	15%	2	6	8	25%
PhD Institutions	6	49	55	11%	8	45	53	15%	6	45	51	12%
Research Intensive PhD Institutions (Top 100)	79	225	304	26%	88	180	268	33%	101	160	261	39%

All the proposals in the Business category came from the NBER. In the table below for all the proposals from FY2004 through FY2006, we have substituted the Principal Investigator's home institution for the NBER.

Submitting Inst	Award #	Decline #	Total #	Funding %	Award Dollar
New York University	24	23	47	51%	$5,405,627
U of Cal Berkeley	21	17	38	55%	$4,678,199
Princeton University	21	24	45	47%	$4,220,085
Harvard University	21	23	44	48%	$3,808,186
U of Pennsylvania	13	16	29	45%	$3,155,795
Yale University	14	13	27	52%	$2,963,305
Boston University	10	17	27	37%	$2,774,467
MIT	12	15	27	44%	$2,690,093
Columbia University	11	23	34	32%	$2,668,834
Stanford University	12	20	32	38%	$2,530,814
U of Wisconsin Madison	11	20	31	35%	$2,360,098
U of Cal San Diego	12	14	26	46%	$2,184,331
Northwestern University	11	22	33	33%	$2,154,731
U of Cal Los Angeles	13	14	27	48%	$2,025,412
U of Minnesota-Twin Cities	8	18	26	31%	$1,773,416
Duke University	8	22	30	27%	$1,681,103
University of Chicago	7	24	31	23%	$1,292,641
PA St U University Park	5	10	15	33%	$1,244,839
Cornell University State	7	13	20	35%	$1,123,187
U of Pittsburgh	6	17	23	26%	$1,108,532
Brown University	4	19	23	17%	$1,050,170
U of Arizona	7	3	10	70%	$1,025,637
U of MD College Park	7	17	24	29%	$975,772

Ohio State Univ Res Fdn	4	15	19	21%	$963,487	
California Inst of Tech	3	10	13	23%	$909,090	
University of Michigan	4	15	19	21%	$861,855	
University of Rochester	5	6	11	45%	$815,292	
U of Cal Davis	3	7	10	30%	$812,414	
U of Southern California	3	3	6	50%	$781,028	
Georgetown University	4	10	14	29%	$711,994	
William Marsh Rice Univ	3	6	9	33%	$631,777	
U of Texas Austin	5	6	11	45%	$620,322	
Vanderbilt University	3	8	11	27%	$504,744	
Wesleyan University	2	0	2	100%	$475,695	
University of Virginia	5	8	13	38%	$447,632	
U of Oregon Eugene	2	2	4	50%	$440,098	
Federal Reserve Bank	2	1	3	67%	$428,228	
Purdue University	4	4	8	50%	$382,326	
U of Houston	2	6	8	25%	$353,627	
Carnegie Mellon University	2	7	9	22%	$345,245	
Urban Institute	1	1	2	50%	$342,390	
U of Colorado Boulder	2	7	9	22%	$340,670	
University of Florida	1	1	2	50%	$331,082	
The Graduate Center, CUNY	1	1	2	50%	$330,720	
Middlebury College	1	1	2	50%	$315,319	
Arizona State University	2	2	4	50%	$307,127	
NBER	1	0	1	100%	$300,000	
Brandeis University	1	2	3	33%	$293,817	
U of Kansas Ctr for Res In	1	1	2	50%	$292,752	
Hamilton College	1	2	3	33%	$291,942	
U of Cal Santa Cruz	2	7	9	22%	$283,008	
Clark University	1	0	1	100%	$278,419	
University of Notre Dame	1	5	6	17%	$271,743	
Santa Clara University	1	1	2	50%	$268,371	
Rutgers Univ New Brunswick	2	11	13	15%	$233,309	
SUNY Stony Brook	1	3	4	25%	$227,376	
Johns Hopkins University	1	6	7	14%	$223,306	
Berea College	1	0	1	100%	$216,630	
U of Ill Urbana-Champaign	1	11	12	8%	$212,712	
Boston College	1	6	7	14%	$209,742	
Indiana University	1	5	6	17%	$203,649	
Nat Opinion Research Ctr	1	3	4	25%	$201,489	
Inst For Intrnatl Econ	1	0	1	100%	$197,610	
Dartmouth College	1	3	4	25%	$191,757	
Case Western Reserve	1	2	3	33%	$179,929	

U of Kentucky Res Fdn	1	1	2	50%	$173,023	
Salisbury University	1	2	3	33%	$168,679	
UC Merced	1	0	1	100%	$168,285	
Clemson University	1	1	2	50%	$159,995	
Syracuse University	1	4	5	20%	$157,500	
Inst For Advanced Study	1	0	1	100%	$145,080	
CUNY Baruch College	1	1	2	50%	$129,400	
Colgate University	1	1	2	50%	$128,879	
Williams College	1	2	3	33%	$122,977	
Washington University	1	1	2	50%	$109,592	
St. Cloud State University	1	2	3	33%	$98,776	
George Mason University	1	8	9	11%	$90,000	
American Bar Foundation	1	0	1	100%	$84,822	
U of NC Chapel Hill	1	9	10	10%	$76,605	
Colby College	1	0	1	100%	$73,158	
Resources For Future Inc	1	7	8	13%	$65,214	
Virginia Commonwealth Univ	1	1	2	50%	$64,826	
U of Cal Irvine	1	2	3	33%	$61,308	
Stephen F Austin St Univ	1	0	1	100%	$57,296	
North Carolina State U	3	3	6	50%	$49,062	
U of South Florida	1	2	3	33%	$12,000	
University of New Mexico	1	0	1	100%	$10,770	
VA Polytechnic Inst & St U	1	3	4	25%	$5,500	
Southern Methodist Univ	1	2	3	33%	$4,450	
American University	0	2	2	0%	$0	
Auburn University	0	1	1	0%	$0	
Ball State University	0	1	1	0%	$0	
Bard College	0	2	2	0%	$0	
Barnard College	0	1	1	0%	$0	
Baylor University	0	1	1	0%	$0	
Bowdoin College	0	1	1	0%	$0	
Brookings Institute	0	1	1	0%	$0	
Bryn Mawr College	0	1	1	0%	$0	
Cal State LA Univ Aux Serv	0	1	1	0%	$0	
Cal State U Fullerton Fdn	0	1	1	0%	$0	
Carleton College	0	1	1	0%	$0	
Center for Global Dev	0	1	1	0%	$0	
Central Michigan U	0	2	2	0%	$0	
Christopher Newport Univ	0	1	1	0%	$0	
Claflin University	0	1	1	0%	$0	
Claremont Graduate Univer	0	1	1	0%	$0	
Claremont McKenna	0	4	4	0%	$0	

College						
College of Charleston	0	1	1	0%	$0	
College of William & Mary	0	1	1	0%	$0	
CUNY Queens College	0	1	1	0%	$0	
Delaware State University	0	1	1	0%	$0	
DePaul University	0	3	3	0%	$0	
East Carolina University	0	1	1	0%	$0	
Emory University	0	4	4	0%	$0	
Florida International Univ	0	2	2	0%	$0	
Florida State University	0	6	6	0%	$0	
Fordham University	0	1	1	0%	$0	
Ga State U Res Fdn, Inc.	0	4	4	0%	$0	
GA Tech Res Corp - GIT	0	3	3	0%	$0	
GDN	0	2	2	0%	$0	
George Washington Univ	0	3	3	0%	$0	
Haverford College	0	1	1	0%	$0	
Howard University	0	1	1	0%	$0	
IFPRI	0	1	1	0%	$0	
Illinois State University	0	1	1	0%	$0	
Indiana State University	0	1	1	0%	$0	
Iowa State University	0	3	3	0%	$0	
Jackson State University	0	1	1	0%	$0	
L, Cook	0	1	1	0%	$0	
La St U & A&M Coll	0	1	1	0%	$0	
Lafayette College	0	2	2	0%	$0	
Loyola Marymount Univ	0	1	1	0%	$0	
McGill University	0	1	1	0%	$0	
Michigan State University	0	7	7	0%	$0	
Middle Tennessee St Univ	0	3	3	0%	$0	
Montana State University	0	2	2	0%	$0	
Moravian College	0	1	1	0%	$0	
Nicholls State University	0	1	1	0%	$0	
North Dakota State U Fargo	0	1	1	0%	$0	
Northeastern University	0	1	1	0%	$0	
Northern Illinois Univ	0	3	3	0%	$0	
Oberlin College	0	1	1	0%	$0	
Oklahoma State University	0	1	1	0%	$0	
Pace University	0	2	2	0%	$0	
Pomona College	0	1	1	0%	$0	
Pontifical Catholi U of PR	0	1	1	0%	$0	
Portland State University	0	1	1	0%	$0	
Public Policy Inst. of CA	0	1	1	0%	$0	
Rensselaer Polytech Inst	0	1	1	0%	$0	
Research Triangle Inst	0	3	3	0%	$0	

Rush-Pres St Luke Med Ctr	0	1	1	0%	$0	
S, Kyereme	0	1	1	0%	$0	
Saint Louis University	0	2	2	0%	$0	
San Diego State Univ Fdn	0	1	1	0%	$0	
Santa Fe Institute	0	2	2	0%	$0	
South Dakota State Univ	0	1	1	0%	$0	
Southern Ill U Edwardsvill	0	1	1	0%	$0	
Southern Utah Univ	0	1	1	0%	$0	
Suffolk University	0	1	1	0%	$0	
SUNY Albany	0	3	3	0%	$0	
SUNY Binghamton	0	4	4	0%	$0	
SUNY Geneseo	0	1	1	0%	$0	
Texas A&M Research Fdn	0	4	4	0%	$0	
Towson University	0	1	1	0%	$0	
Trinity University	0	1	1	0%	$0	
Tufts University	0	10	10	0%	$0	
U of Alabama Huntsville	0	1	1	0%	$0	
U of Alabama Tuscaloosa	0	2	2	0%	$0	
U of Arkansas	0	2	2	0%	$0	
U of Arkansas Little Rock	0	1	1	0%	$0	
U of Cal Riverside	0	3	3	0%	$0	
U of Cal Santa Barbara	0	3	3	0%	$0	
U of Central Florida	0	2	2	0%	$0	
U of Colorado Denver	0	1	1	0%	$0	
U of Hawaii	0	1	1	0%	$0	
U of Hawaii at Hilo	0	1	1	0%	$0	
U of Houston Downtown	0	1	1	0%	$0	
U of Illinois Chicago	0	2	2	0%	$0	
U of Massachusetts Amherst	0	3	3	0%	$0	
U of MD Baltimore County	0	3	3	0%	$0	
U of Missouri Columbia	0	3	3	0%	$0	
U of NC Charlotte	0	1	1	0%	$0	
U of New Hampshire	0	2	2	0%	$0	
U of South Dakota	0	1	1	0%	$0	
U of Southern Mississippi	0	2	2	0%	$0	
U of Tennessee Knoxville	0	4	4	0%	$0	
U of Texas Dallas	0	5	5	0%	$0	
U of Texas Pan American	0	1	1	0%	$0	
U of Vermont & St Agr Coll	0	1	1	0%	$0	
U of Washington	0	4	4	0%	$0	
U of Wisconsin Milwaukee	0	1	1	0%	$0	
Univ of Connecticut	0	1	1	0%	$0	

University of Akron	0	1	1	0%	$0
University of Delaware	0	4	4	0%	$0
University of Hartford	0	1	1	0%	$0
University of Iowa	0	3	3	0%	$0
University of Maine	0	1	1	0%	$0
University of Memphis	0	2	2	0%	$0
University of Mississippi	0	3	3	0%	$0
University of Utah	0	2	2	0%	$0
University of Wyoming	0	2	2	0%	$0
University San Francisco	0	1	1	0%	$0
USC Research Foundation	0	4	4	0%	$0
Utah State University	0	2	2	0%	$0
Wake Forest University	0	2	2	0%	$0
Washington & Lee Univ	0	1	1	0%	$0
Wayne State University	0	1	1	0%	$0
Wellesley College	0	3	3	0%	$0
Wisconsin Lutheran Col	0	1	1	0%	$0
WKU Research Foundation	0	1	1	0%	$0
WV Univ Research Corp	0	1	1	0%	$0
The Hebrew Uni. of Jerusalem	0	1	1	0%	$0
Naval Postgraduate School	0	1	1	0%	$0
University of Toronto	0	1	1	0%	$0
Total					$74,142,194

Funding of Minority-Serving Institutions :

FY		Awards	Declines	Total	Funding Rate
2004	Number of Proposals from MSI	1	9	10	10%
	% of Proposals from MSI in Total Number of Proposals	1%	3%	2%	*
	Number of Proposals not from MSI	107	323	430	25%
	Total Number of Proposals	108	332	440	25%
2005	Number of Proposals from MSI	2	7	9	22%
	% of Proposals from MSI in Total Number of Proposals	2%	2%	2%	*
	Number of Proposals not from MSI	122	281	403	30%
	Total Number of Proposals	124	288	412	30%

2006	Number of Proposals from MSI	4	7	11	36%
	% of Proposals from MSI in Total Number of Proposals	3%	3%	3%	*
	Number of Proposals not from MSI	138	250	388	36%
	Total Number of Proposals	142	257	399	36%
Total	Number of Proposals from MSI	7	23	30	23%
	% of Proposals from MSI in Total Number of Proposals	2%	3%	2%	*
	Number of Proposals not from MSI	367	854	1221	30%
	Total Number of Proposals	374	877	1251	30%

YES

9. Does the program portfolio have an appropriate balance of:
   - Projects that integrate research and education?

Comments:

See the Educational, Training section of the brief statement.

FY	Proposal #	PI	Institution	Title
2004	0349278	Levin	Stanford University	CAREER: Market Design and the Limits of Markets
2004	0348909	Tamer	Princeton University	CAREER: Robust Inference in Incomplete Econometric Models
2005	0449946	Abdulkadiroglu	Columbia University	CAREER: Theoretical and Practical Mechanism Design with an emphasis on Public School Choice
2005	0449625	Hortacsu	University of Chicago	CAREER:Empirical Analysis of Auction and Matching Markets
2006	0547748	Battaglini	Princeton University	CAREER: A Legislative Theory of Public Spending, Debt and Taxation
2006	0547898	Karlan	Yale University	CAREER: Field Experiments in Credit, Insurance, and Behavioral Economics

YES

10. Does the program portfolio have an appropriate balance:
   - Across disciplines and subdisciplines of the activity and of emerging opportunities?

Comments:

YES

11. Does the program portfolio have appropriate participation of underrepresented groups?

Comments:

FY		Awards	Declines	Total	Funding Rate

2004	Number of Proposals with Women Involvement	24	74	98	24%		
	% of Proposals with Women Involvement in Total Number of Proposals	22%	22%	22%	*		
	Number of Proposals without Women Involvement	84	258	342	25%		
	Total Number of Proposals	108	332	440	25%		
2005	Number of Proposals with Women Involvement	22	62	84	26%		
	% of Proposals with Women Involvement in Total Number of Proposals	18%	22%	20%	*		
	Number of Proposals without Women Involvement	102	226	328	31%		
	Total Number of Proposals	124	288	412	30%		
2006	Number of Proposals with Women Involvement	32	61	93	34%		
	% of Proposals with Women Involvement in Total Number of Proposals	23%	24%	23%	*		
	Number of Proposals without Women Involvement	110	196	306	36%		
	Total Number of Proposals	142	257	399	36%		
Total	Number of Proposals with Women Involvement	78	197	275	28%		
	% of Proposals with Women Involvement in Total Number of Proposals	21%	22%	22%	*		
	Number of Proposals without Women	296	680	976	30%		

	Involvement					
	Total Number of Proposals	374	877	1251	30%	

12. Is the program relevant to national priorities, agency mission, relevant fields and other customer needs? Include citations of relevant external reports. Comments:	YES
13. Additional comments on the quality of the projects or the balance of the portfolio:	

A.5 Management of the program under review. Please comment on:

1. Management of the program. Comments: The NSF Economics program is an extremely high quality program. It has benefited from having a long-term Program Director. The Program Director is very well respected in the economics profession. He has established close ties to leading scholars throughout the profession and is perceived to have no personal biases about what constitutes high quality research in economics. The profession is very lucky to have him in his position.
2. Responsiveness of the program to emerging research and education opportunities. Comments:
3. Program planning and prioritization process (internal and external) that guided the development of the portfolio. Comments:

4. Additional comments on program management:

PART B. RESULTS OF NSF INVESTMENTS

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The NSF mission is to:

- promote the progress of science;
- advance national health, prosperity, and welfare; and
- secure the national defense.

To fulfill this mission, NSF has identified four strategic outcome goals: Discovery, Learning, Research Infrastructure, and Stewardship. The COV should look carefully at and comment on (1) noteworthy achievements based on NSF awards; (2) ways in which funded projects have collectively affected progress toward NSF's mission and strategic outcome goals; and (3) expectations for future performance based on the current set of awards.

NSF investments produce results that appear over time. Consequently, the COV review may include consideration of significant impacts and advances that have developed since the previous COV review and are demonstrably linked to NSF investments, regardless of when the investments were made.

To assist the COV, NSF staff will provide award "highlights" as well as information about the program and its award portfolio. Since relevant aspects of the Stewardship goal are included in Part A, the COV is not asked to respond to that goal in Part B.

B. Please provide comments on the activity as it relates to NSF's Strategic Outcome Goals. Provide examples of outcomes ("highlights") as appropriate. Examples should reference the NSF award number, the Principal Investigator(s) names, and their institutions.

B.1 <u>OUTCOME GOAL for Discovery:</u> *"Foster research that will advance the frontier of knowledge, emphasizing areas of greatest opportunity and potential benefit and establishing the nation as a global leader in fundamental and transformational science and engineering."*

Comments:

NSF-supported research in Economics funds a wide range of topics that help our understanding of how the economy works, the impact of changing economic conditions and policies on workers, households and firms. This research has yielded applications with high payoffs on topics ranging from the creation of markets for controlling pollution, the rules for the auctions of the radio spectrum for telecommunications and electricity generation, financial market innovation, the optimal policies of key macroeconomic institutions like the Federal Reserve Board, and new methods for improving the efficiency of the U.S. health system. Many NSF-funded projects fund basic science – helping us understand specific components of the complex U.S. economy that is increasingly integrated with a world economy. In what follows, we focus on a few highlighted areas of NSF-sponsored research with an emphasis on sponsored projects that are directly yielding new insights into high priority areas in Economics. It is important to put these highlights into context – many of the advances we discuss below build on the insights and developments from basic science projects in Economics that are also supported by NSF.

Economics offers important examples of transformative research: work that has radically changed the framework and concepts we use to understand the world around us and how we can change it, as well as how subsequent research proceeds. Three examples run through a wide range of the NSF-funded research we discuss below: first, game theory and an offshoot from it, auction theory, which has revolutionized our understanding of economic interactions and has had so many applications – current examples are eBay, the auction of radio and mobile telephone spectrum, and carbon emissions trading; second, the rational expectations revolution that led, for example, to a new analysis of the causes and consequences of inflation, which in turn underlies the spectacular improvement in central bank performance in the US and around the world over the past two decades;.third, the financial revolution sparked by the theory of options pricing, which gave us the enormous variety of new financial instruments now at the heart of financial globalization.

All three of these radical innovations funded by NSF earned Nobel Prizes. And as we document below, these and other results from fundamental economic research contribute directly to the analysis of public policy in areas of national priorities: health, ageing, immigration, education, climate change, competitiveness, globalization, financial stability, and monetary policy. The economics program finances core science that often makes a difference to how we live and work.

Auction and Matching Markets

One of the most fruitful practical applications of game theory, an area of research supported by the NSF almost from its inception, has been the analysis and design of auction and matching markets. Auctions have been used to allocate radio spectrum, electricity generation and transmission, and the right to emit greenhouse gases. Matching markets are used to assign residents to residency programs, children to schools, and kidneys to transplant candidates.

For all the progress that has been made in our understanding of how different auction and matching rules affect bidding and ranking behavior, much is still unknown. This is particularly true where time is involved. Ausubel (0531254) is applying insights about dynamic auctions to dynamic matching

procedures. Wooders (0519342) is using the experimental laboratory to study one of the most vibrant dynamic auction institutions, the online auction, of which eBay is the best known example. In these markets buyers are confronted with multitudes of options and the optimal strategy is from simple. Wooders is testing competing theories of the phenomenon of "snipping": the submission of multiple bids in the last seconds of an auction. Hortacsu (0449625), on the other hand, is going into the field to study the ERCOT (Electricity Reliability Council of Texas) electricity balancing market, where electricity generators submit hourly supply bids to increase or decrease production to meet short-term fluctuations in electricity demand. In many real world auctions, ranging from broadcasting the Olympic Games to the rights to drill for oil or the choice of the leading counsel in a class action suit, the winning bidder pays long after the conclusion of the auction. Moreover, the payment is contingent on future events and depends on the realized cash flows from the object being sold. DeMarzo (0318467) is using auction theory and results from the literature on security design to study these complex situations. Maskin (0618345) is continuing his pioneering work on auction and mechanism design to incorporate insights from the new area of behavioral economics, such as hyperbolic discounting and soft budget constraints. Finally, Perrigne (0452154) is using data from US Forest Service timber auctions to develop ways to estimate bidder valuation functions from their bidding behavior.

Immigration

There has been a massive increase in immigration to the United States over the last 40 years. The 1965 amendments to the Immigration and Nationality Act repealed an earlier system where visas were awarded on a national origin system and greatly increased the number of visas available. The limit on the number of visas doubled (from 154,000 to 290,000) and in addition special preferences for family members made immediate family members of current U.S. residence exempt from this cap. The 1990 Immigration Act further increased the annual limits on visas to 675,000 (700,000 for 1992-94). In addition, the 1980 Refugee Act broadened the definition of a refugee and raised the annual cap to 125,000, with refugees being exempt from the overall visa limit since the 1990 Immigration Act. Finally, illegal immigration is thought to have greatly increased during this same time period. One piece of evidence of the large number of illegal immigrants in the U.S. is that the passage of the 1986 Immigration and Control Act (IRCA) resulted in 2.7 million illegal immigrants being naturalized.

The consequence has been a tremendous change in the composition of the U.S. population. First the level of immigration increased enormously. In 1964, 292,697 immigrants arrived in the U.S. (in the 1930s, only 35,000 immigrants arrived annually). In 1974, 394,861 immigrants arrived, in 1984, 543,903, and in 1994, 804,416 immigrants arrived in the U.S. Since 2000, more than 1 million immigrants have arrived each year according to the Immigration and Naturalization Services. Hence the fraction of the U.S. population that was born abroad has increased dramatically. Second, the composition of place of origin of immigrants has shifted. In 1960, 75% of immigrants were from Europe and only 5% from Asia and 9% from Latin America. By 2000, only 15% of immigrants were from Europe, 25% were from Asia and 51% were from Latin America. Finally, there is evidence from NSF-supported research (e.g., Borjas (9617589) that with an increased emphasis on family ties as a method of qualifying for a visa, the level of human capital of immigrants has been declining over this period. Borjas reports that in 1970, immigrants were 21% more likely to be high school dropouts than native-born Americans; by 1990 they were more than twice as likely to be high school dropouts.

Therefore, in terms of numbers, native-tongue, and other productive skills, immigration has greatly affected the U.S. workforce.

Given these trends, economists have generally been concerned with two questions. First, "What is the impact of immigration on the economic performance of native-born Americans?" Second, "How do immigrants perform in the U.S. economy?" Borjas's work has helped both document these trends including the composition effects and explored these issues. For example, Card (9905527) and Borjas are amongst the economists engaged in the debate on the economic impact on native-born Americans – Borjas's research tends to find a larger impact on the wages of native born Americans than Card, but this debate is hardly settled. Part of the reason is that the requisite data infrastructure for such analysis is still very much under development. Abowd (9978093, 0339191) has led a team of economists and statisticians to develop the longitudinal matched employer-employee data that will be invaluable for studying the dynamics of the labor market and in particular the causes and consequences of immigration.

Aging

Institutional and demographic changes will affect the number of older people as well as the number of older people working. The aging of the baby boom underlies the core of the demographic trends. Currently, about 13 percent of the U.S. population is 65 or older, and this will grow to more than 20 percent by 2030. Improvements in health as well as institutional changes such as changes in Social Security retirement ages, the elimination of mandatory retirement, and changes in pension plans all have an impact on the retirement decision of older Americans. The types of firms that hire older workers are also changing. The transformation of the U.S. economy from manufacturing to services over the last several decades, combined with the ubiquitous use of the computer and, of late, the Internet in the workplace, has also transformed both the way businesses do business and the way workers interact within and between businesses.

Understanding the impact of these changes on workers and firms as well as on older Americans more generally is a rich area of study that is supported by NSF-sponsored research. Poterba (0136792) has been exploring the impact of tax policy on the investment and savings decisions of older Americans – the type of portfolios they hold and the impact of these decisions on retirement and other outcomes for older people. Chan and Stevens (9905275) have been examining the impact of job loss on the retirement decisions and outcomes for older workers. Costa (0318012) has been supervising NSF-sponsored dissertation research on age discrimination.

Central Bank Design, Inflation and Output Stabilization

The past two decades have witnessed revolutionary improvements in central bank policy and design, which have helped dramatically lower inflation and output volatility. These improvements, particularly lower inflation levels, have provided fertile ground for the contemporary revolution in financial markets that has both further stabilized output and helped raise long-term growth, particularly in the United States. Inflation has come down from double-digit levels in the 1970s to a very low and stable level today. Output volatility is now only half of what it was in the 1980s, at least in part due to refinements in monetary policy.

Many of these refinements are applications of ideas developed in NSF-funded research, including work by current US Federal Reserve chairman Ben Bernanke, whose NSF research has included work on exchange rate and financial systems and on monetary policy. Research has emphasized the importance of central bank independence in helping maintain low and stable long-term interest rates, as well as the development of simple transparent rules for setting interest rates as function of inflation rates and output levels.

Better monetary techniques have also had a profound impact abroad. Inflation rates in Latin America, for example, have come down from an average of over 300% in the early 1990s to just over 6% today. The drop in central Asia and parts of Africa is even more dramatic. The NSF Economics program has funded a significant number of influential projects, and the work continues actively today, including Boivin (0001751), Bernanke (0001708), Chari (04189184), to name just a few. The Bernanke grant cited showed how to develop techniques for using mass numbers of macroeconomic data series to extract information on a few key variables such as inflation.

Climate Change

Increasingly, the debate over global climate change has reached a firm global consensus that significant steps are needed to ameliorate global warming. The debate now is over what policies would produce the greatest benefit at the least cost. The economic stakes are enormous. Much of the world, and in particular Europe, has enthusiastically embraced a system of tradable quantity restrictions, or "cap and trade", under the so-called Kyoto protocol. Europeans view their system as close to ideal and have pressed hard to have the United States adopt a similar system. There is also the question of understanding the implications of other approaches, such as carbon taxation (a generalized form of a gas tax.)

To view dealing with climate change purely as a physics problem is pure folly. It is essential to understand the incentives both individuals and societies have to control greenhouse gases, and how policies can play a constructive role. Thus economists have a vital role to play. What are the substitution and reallocation responses to energy price increases (Haltiwanger, 9730667)? Is there a danger that policies to protect the environment will fail because they exacerbate income inequalities, and how can that problem be mitigated (Goulder, 0112102)? How are industrialization and urbanization in the developing world impacting air quality (Henderson, 9730142)? How should states deal with trans-boundary pollution (Fernandez, 9818753)?

Econometric methods are useful in some of the core scientific debates. Economists have developed simultaneous equation methods to analyze issues such as the extent to which global warming raises the level of greenhouse gases (by causing their release from deserts, tundra, etc.) and how far greenhouse gases cause global warming (William Nordhaus has analyzed this question in NSF-funded research on climate change). The UK's Stern report on global warming applied many ideas developed by US-based economists in NSF-funded research.

Health

The health sector accounts for over 15% of the US economy today. According to economists David

Cutler, as well as Charles Jones and Robert Hall (all past recipients of NSF funding), health care costs are likely to rise to 30% of GDP over the next two to three decades. The implications for public policy are immense. On current trajectory, Medicare programs will balloon to dominate the Federal budget unless changes are made. Cutler, Jones and Hall emphasize that a large part of the anticipated health care rise comes in response to changes in technology that extend life spans and improve quality of life. So answers to the challenge cannot be found simply through research on bio-technology, but rather fundamental economics research is needed to help society understand how to address these tradeoffs. Economists have made many other important contributions to the health care sector in NSF-funded research. Alvin Roth has helped design and develop a computerized matching program for kidney transplants that has allowed more people be able to get transplants than was previously possible. Roth's ideas have important potential applications to other health areas as well. An algorithm designed in NSF-funded research is used to help match interns and hospitals at a national level.

Competitiveness and Globalization

It is very troubling to the COV that the NSF has justified a major portion of its prospective funding increase on the back of a "competitiveness initiative" that does not include any input from economics. The whole idea of "competitiveness" is fundamentally an economic concept, and countries that proceed with "competitiveness initiatives" that are blind to economic analysis have wasted tens of billions of dollars by not properly analyzing their strategies. Economists who study international trade, industrial organization, and productivity growth have developed key insights on how to think about these problems, what works, and what doesn't. Economists have a framework for analysis that allows one to compare alternative policy strategies that the hard sciences, quite simply, lack. The NSF has funded a great deal of research in the past on globalization and competitiveness issues, but recent developments in the global economy present many new challenges, for example in thinking about the implications of outsourcing, energy needs, and innovation. Many countries today are confronting the issue of how globalization affects their societies and are contemplating increased investment in education and science as an answer. We certainly share this view, but it only needs to be pointed out that the US already spends a great deal on both education and R&D, so that questions of efficiency, allocation and incentives are also fundamental.

NSF-funded research has greatly helped deepen our understanding of globalization. For example, research has helped show that part of the large US trade deficit is being funded by superior US returns on foreign investments, reflecting US superiority in the financial sector that is not necessarily reflected in the conventional trade statistics (0519217, Rey). Work in trade has shown that the big impact of recent developments in trade hits at the same sectors across different industries (for example, some accounting tasks are outsourced to India), rather than across industries as in the past (for example, when Asian producers took over electronics production.) (Grossman and Helpman, 9451712) Work that cuts across the field of industrial production and international economics has shown how trade has led to big productivity gains by spurring industry reorganization (Melitz, 0417757).

Financial Globalization

Global turnover on foreign exchange markets exceeds $2 trillion daily. Almost half of US Treasury

securities are held by foreigners. The New York Stock Exchange has just merged with Euronext, a multi-country European exchange. Some argue that financial globalisation itself explains why the US has such a large deficit on the current account of the balance of payments, as countries not as financially developed as the US now find it easier to invest their savings in American assets. Insights from NSF-funded research have been key in making sense of this transformation of the international financial scene. Evans and Lyons (0001893), for example, explain the volume of trading in foreign exchange markets in terms of the market microstructure, the way in which dealers interact in trading. The rapid rise of electronic trading platforms has facilitated that interaction and helped to make the market truly global, no longer segmented by time zones – with a consequent shift of business from New York to London. Lewis (0136938) shows how listing shares in the US and on a foreign stock exchange enhances market integration while simultaneously reducing the benefits of international portfolio diversification. There is still 'home bias', however, pointing to unexploited gains from further financial globalisation. That is why the process will continue to shape international financial relations in ways that economic and financial research must address further.

Changing Structure of Financial Markets

Electronic trading in foreign exchange, bonds and stocks is not the only big change in the way financial markets work. Spearheaded by Silicon Valley firms, venture capital and private equity have expanded at an extraordinary pace. VC funding rose 12% from 2005 to $26 billion in 2006. The life sciences have been a particular focus, and the predominance of the US and UK in innovative R&D in biotechnology and medical devices is due in good part to the importance of venture capitalists in the two countries. Not a week passes without a new major private equity deal announced or rumored, of sizes unimaginable only a year or two ago – one of $35 billion recently. The old framework of enterprise creation and growth through bank loans, internal funds and public equity participation is no longer dominant. But it is not obvious why the new modes of financing should be superior and whether they might fade out. Puri (0002011) shows some reasons, with evidence pointing to the role of venture capitalists in the development of human resources in firms, the professionalization of startups. He also finds a new role for banks as strategic investors alongside venture capitalists, going beyond the traditional monitoring function of financial intermediaries to a broader involvement in the development of enterprises. This suggests a lasting change in the way financial institutions and markets support the innovation that is essential to raising competitiveness.

Financial Instability

The Russian debt default and currency devaluation of August 1998, followed by the failure of the hedge fund Long Term Capital Management, sent shock waves throughout international financial markets that hit the United States domestically too. Financial markets and institutions are a foundation stone of economic activity and growth. But the costly US thrifts debacle of the 1980s, the Mexican crisis, the Asian crisis, Argentina's default, the bursting of the hi-tech stock price bubble and the current problems with sub-prime mortgages all testify to what can happen when they go wrong. Much of NSF-funded research in economics and finance illuminates the risks and gives analytical and empirical justification for policies that can mitigate them.

In recent years, financial market volatility has been at historically low levels. But are we measuring volatility correctly? Diebold (0317720) gives some answers, and Bollerslev (0550929) shows how

volatility relates to risk premia in the markets and its implications for macroeconomic stability. Gabaix (0215908) has attracted exceptional media attention for basic research on financial asset price volatility, applied to stock markets, and showing how a ”power law” can represent the frequency of extreme price changes. The financial press talks loosely about “asset price bubbles”, and policy-makers debate whether (for example) the Fed should try to use monetary policy to dampen ”irrational exuberance”. These issues, however, raise difficult technical problems that have been a major topic in the new research area of behavioral finance. Brunnermeier (0214445) shows how money illusion may be a cause of housing price bubbles, and Scheinkman (0350770) offers a general framework for the analysis of bubbles. Gale (0095109) develops the theory of financial instability and applies it to the regulation of financial institutions so as to minimize instability in a global context.

Better regulation may help to minimize financial crises and their impacts, but the historical record analysed by Bordo (0099031) suggests that there will always be crises. That is not surprising: in capitalist economies that thrive because of risk-taking, some risks will inevitably go bad, and sometimes this will happen on a large scale. But to understand a macroeconomic and financial crisis, we have to go to the micro level. Here the research of Velasco (0111800) – formerly at Harvard, now the Finance Minister of Chile – is highly relevant. He shows how in emerging market countries, firms’ balance sheets are affected by volatility of the real exchange rate, and how this depends on the proportion of their liabilities in foreign currency. This gives guidance to policy-makers and investors alike.

B.2 OUTCOME GOAL for Learning: ***“Cultivate a world-class, broadly inclusive science and engineering workforce, and expand the scientific literacy of all citizens.”***

Comments:

NSF-supported research provides several sources of support for training and education of undergraduate and graduate students in Economics. For individual research awards, about 13 percent of total costs (direct plus indirect) costs are allocated directly to support of graduate research assistants and another 1 to 2 percent of total costs are for postdoctoral fellows and undergraduate research assistants.

In addition to individual research awards, the Economics Program enhances the training and education infrastructure with a number of specific projects. For example, NSF awards have supported the American Economic Association (AEA) Summer Training Program since 1997 (Becker 0452821, 0139528). During the summer program's nine-week period, participants take courses and conduct research at two levels: Foundations (advanced undergraduate and beginning master's level coursework) and Advanced (master's level coursework). The 2005 AEA Summer Training Program had 39 students. Of these, 36 were from underrepresented minority groups, and 16 received REU support. The students came from 37 colleges or universities in 24 states--a truly national program. In its two years that the program has been resident at Duke University, the student

body has been 44% female, 55% African-American, and 31% Hispanic. Another indicator of the efficacy of the AEA Summer Training Program is the progression of past participants in the program through doctoral programs. Of the 132 participants during the period 2001-05, 57 students are expected to be enrolled in a Ph.D. program during the academic year 2006-07.

The Summer School in Neuroeconomics advanced the new interdisciplinary field of neuroeconomics by providing an in-depth introduction to neuroeconomics to graduate students, post-docs, and some young researchers who are interested in doing work in this area. It also helped develop a common language and methodology for the field. This was the first meeting of its kind and it helped attract top scientific talent into the field. The conference was supported by the Economics, DRMS and Cognitive Psychology Programs. (award #0548928)

Game theory is a contender for becoming the central theory in economics and related social sciences. Broadly speaking, a game is an interactive situation in which everyone's incentives depend on their own and others' actions. Games have been used to model a wide variety of environments, such as collective action problems, market pricing, auctions, committee voting, family decisions, organizational behavior, and contract law negotiations. NSF supported (Holt 0094800) the creation of VEconLab, a virtual collaboratory that coordinates web-based teaching, research, and programming activities involving the investigators and other researchers who decide to post and share their work. The central website contains a set of useful computer programs and a data base of interdisciplinary experimental results, structured to stimulate further theoretical work that is guided by carefully documented empirical regularities. The use of this virtual collaboratory for teaching and mentoring is improving the quality of education in the social and behavioral sciences. The virtual collaboratory also enables researchers throughout the world to work together in the design of new laboratory experiments in the social and behavioral sciences by developing and deploying an advanced cyberinfrastructure.

B.3 <u>OUTCOME GOAL for Research Infrastructure: "</u>*Build the nation's research capability through critical investments in advanced instrumentation, facilities, cyberinfrastructure and experimental tools."*

Comments:

NSF Economics Program has for many years been and continues to fund the creation of microdata. This is data on the characteristics of specific individuals and households, is essential for fine-grained analyses of social change and human behavior. NSF has for many years funded the creation and maintenance of US-specific microdata sets, such as the Panel Study of Income Dynamics. NSF is now taking the lead in creating similar non-US-based data sets. Most nations have vast repositories of high quality individual microdata in their census records, but it is difficult to exploit the data for research because of access restrictions and privacy concerns, and often older data is degrading or in danger of being discarded. IPUMS-International is a multinational collaboration of scholars from over 40 countries that has assembled microdata sets. NSF recently funded (Ruggles 9907416, 0433654) a major expansion of the IPUMS-International database project. At this writing, the project has obtained and archived data covering over a billion person records from 150 censuses in 43 countries, and the datasets are still flowing in. The NSF has also supported (Smeeding 0112101)

Luxembourg Income Study (LIS) database project consists of comparable cross-sectional microdata on the composition of households and their income structures for 25 industrialized economies. LIS is perhaps the leading example of an interdisciplinary, cross-national, cooperative data infrastructure which supports research that leads to important policy relevant insights. Finally, NSF has funded the creation of the Davidson Data Center and Network (Kennedy 0120376), an integrated, fully searchable database on transition and emerging markets. The goal of the project is to acquire, preserve and make widely available micro data and macro statistics from these economies. More than 100 free data sets or links have been added to the database since April 2003.

The maturation of the information age has created new challenges. Governments, faced with rapidly changing economies and societies are forced to make far-reaching economic and social policy decisions. These decisions, however, are often based on limited statistical information or expensive but limited survey data. At the same time, large administrative data sets are available that are derived from data collected from households, business establishments and government entities. These data, which could describe the dynamic interactions of workers, businesses, government and society, are not used to best advantage in the United States, in part because the unique advantages of these data have not been clear, but also because key issues of confidentiality and access have not been fully addressed. An NSF grant (Abowd 9978093) helped establish the Longitudinal Employer-Household Dynamics (LEHD) Program at Census to create longitudinal data sets including both household/individual and firm/establishment data based upon the Census Bureau's demographic and economic products and using linked information. The LEHD Program at Census is important both because of the unique linkages it provides and because it is the first major statistical project to develop a workable synthetic data system. It enables evidence-based policy decisions and the development and testing of more sophisticated economic and social theories.

NSF awards (Hammond 0243039, Bernheim 9912108) have also supported the Summer Program of the Stanford Institute for Theoretical Economics (SITE). The SITE Summer Program workshops have attracted top scholars from around the world, giving them opportunities to present their research results as well as collaborate on new research. This collection of workshops brings together prominent scholars as well as younger economists for presentation and discussion of their research. A special effort is made to identify young economists who would benefit from attending these workshops, and give them extra help to make the trip. In addition, for more than two decades, NSF has helped (Feldstein (0317757) the National Bureau of Economic Research (NBER) to organize a Summer Institute. The Summer Institute brings together economists and scholars in other fields from universities, government, and international organizations for a few days or a few weeks of seminars, workshops, conferences, and cooperative research. Summer Institute included the following topics: corporate finance; monetary economics; forecasting and empirical methods in macroeconomics and finance; international finance and macroeconomics; asset pricing; economic growth; economic fluctuations; innovation policy; aggregate implications of microeconomic consumption behavior; capital markets and the economy; income distribution and macroeconomics; impulse and propagation mechanisms; economics of intellectual property; macroeconomics and productivity; industrial organization; consumer expenditure survey; development of the American economy; corporate governance; law and economics; education; aging; international trade and investment; labor studies; public policy and the environment; real estate markets, local public finance and public policy; economics of national security; children; social security; economics of taxation; health economics; personnel economics; and health care.

PART C. OTHER TOPICS

C.1 Please comment on any program areas in need of improvement or gaps (if any) within program areas.

In examining the portfolio of projects across areas within Economics, the COV did not find areas of imbalance or significant gaps. However, the overall level of funding for Economics (especially in terms of core funding) is low. Virtually all of the growth in funding for Economics has come from initiatives funding. There has recently been some modest increase in funding (about 9 percent in 2006) but other programs within SES received substantially larger increases (Sociology had an increase of around 30% in the same year).

C.2 Please provide comments as appropriate on the program's performance in meeting program-specific goals and objectives that are not covered by the above questions.

A significant fraction of "should fund" projects are not funded. Our review of the should fund projects that are not funded indicates many highly valued projects that are unfunded.

C.3 Please identify agency-wide issues that should be addressed by NSF to help improve the program's performance.

As noted above, the growth in funding has come primarily from initiatives with separate peer review panels. We understand part of the motivation for these initiatives is to insure that cross-cutting projects that are helping to push beyond existing paradigms get sufficient funding. However, we have not seen evidence that the economic science coming out of the average or marginal project funded by the cross-cutting initiatives program is of equivalent value than the economic science projects funded by the core Economics Program. This comparison is important to the advancement of good science. There appear to be few data for conducting such a comparison and little interest in this fundamental issue within the Directorate or at the agency-wide level.

Ironically, the creation of the initiatives in order to avoid program areas becoming insulated "silos" has created its own form of insulated "horizontal silos". This would be a problem regardless of funding, but is of critical importance given that almost all of the growth in funding is in the initiatives.

C.4 Please provide comments on any other issues the COV feels are relevant.

As should be clear from the comments in this section, the COV for the Economics Program views the current organizational structure to have significant problems in how funding is allocated between the core Economics Program and the cross-program initiatives, as well as in how the peer review process and COV review process works. We also found that the creation of initiatives themselves appears to be adversely

impacted by the current organizational structure. An important example is the American Competitiveness Initiative (ACI) which looks to provide the substantial additional funding for NSF over the next 10 years. The Economics COV finds it incredible that the Economics Program is not part of an initiative that uses the term "competitiveness" in its title. We understand that the primary purpose of this initiative is to fund basic research in the physical sciences in order to enable the U.S. economy to maintain its competitive edge. However, "competitiveness," by its very nature, is about economics – and there is no provision for measuring and assessing the R&D innovations that will be forthcoming from the ACI. Moreover, in the 21st century, innovation and competitiveness is increasingly about service industries rather than goods producing industries and particularly the financial services industries. Innovations in these industries are not coming from the physical sciences but are coming from Economics. From many angles, excluding Economics from the "competitiveness" initiative makes little sense.

C.5 NSF would appreciate your comments on how to improve the COV review process, format and report template.

The mandate of the COV panel for Economics is to look at the operations and funding of the Economics Program. However, since many projects in Economics are now increasingly funded by initiatives, it is impossible to evaluate the funding in Economics independent of the funding by the initiatives. The data on and access to project jackets as well as the program information provided to the COV in Economics is not sufficient for the COV in Economics to make the appropriate evaluation. We understand that there are separate COVs for the individual initiatives. We think it makes little sense to have completely separate COVs that are prevented from jointly evaluating the core funding and initiative funding simultaneously.

SIGNATURE BLOCK:

John Haltiwanger
Richard Portes
Luis Fernandez
Kenneth S. Rogoff

_____

For the Economics COV
John Haltiwanger
Chair

Innovation and Organizational Change

FY 2007 REPORT FOR
NSF COMMITTEES OF VISITORS (COVs)

Program: Innovation and Organizational Change (IOC)
Number of actions reviewed: Awards: 31 Declinations: 30 Other: 0
Total number of actions within Program during period under review: **Awards: 40 Declinations: 232 Other: 26**
Manner in which reviewed actions were selected: The decline jackets were selected randomly from a numbered list of all of the awards and declines made during the COV review period using a random number generator. The awards reviewed by the IOC program actually represent the complete IOC award population.

PART A. INTEGRITY AND EFFICIENCY OF THE PROGRAM'S PROCESSES AND MANAGEMENT

Briefly discuss and provide comments for *each* relevant aspect of the program's review process and management. Comments should be based on a review of proposal actions (awards, declinations, and withdrawals) that were *completed within the past three fiscal years*. Provide comments for *each* program being reviewed and for those questions that are relevant to the program under review. Quantitative information may be required for some questions. Constructive comments noting areas in need of improvement are encouraged.

Executive Summary

The Innovation and Organizational Change (IOC) program is managed very effectively. The program officer has done an excellent job of managing the review process. A very positive change relative to the last COV report is the increased use of external reviewers. We applaud the program officer's success in implementing this recommendation. The IOC program implements the NSF merit review criteria effectively and funds research that is both very strong intellectually and has broader impacts on society.

The program focuses on issues of fundamental importance to the mission of the NSF and the well-being of the nation: innovation and organizational change. Because innovation is so central to the American Competitiveness Initiative, the program should be involved is this initiative. Successful innovation involves attention to human, social, organizational and technological dimensions. These are dimensions that the IOC program is equipped to address. The interdisciplinary and problem-solving orientation of the program enable it to advance knowledge about the important challenges of our time, such as innovation, productivity and sustainability.

Although the program is young and its funding is modest, it has already had an impact. Conferences funded by the IOC have resulted in special issues in top-tier journals, such as *Organization Science*. Articles reporting important results from IOC-funded work

have been published in leading journals. Research funded by the IOC, such as Bill Ouchi's work on schools, has influenced practice. In total, the IOC program has achieved an impressive set of accomplishments.

The COV has several suggestions for increasing the impact of the IOC program. The most essential is to increase the budget devoted to this important, but under funded program. In terms of its internal practices, we encourage the IOC to give a larger number of smaller awards to young scholars rather than funding a small number of young scholars with CAREER awards. Investing in conferences has a very high return, so we encourage devoting more funds to conferences. We endorse the program officer's increased outreach activities and suggest additional practices (see section C1) to reach out to other groups and disciplines. We applaud the refocusing of the program on fundamental research and suggest new and emerging areas that are important to the mission of the IOC. With increased funds and a few adjustments in practices, we expect the impact of this important program to increase.

A.1 Questions about the quality and effectiveness of the program's use of merit review procedures. Provide comments in the space below the question**.** Discuss areas of concern in the space provided.

QUALITY AND EFFECTIVENESS OF MERIT REVIEW PROCEDURES	**YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE[11]**
1. Is the review mechanism appropriate? (panels, ad hoc reviews, site visits) We applaud the increased use of external ad hoc reviewers in addition to the reviews done by the panel. External reviews in 2006 were nearly double in number to those conducted in 2005. We encourage the continuance of this practice. We did note that the number of reviews was highly variable.	Yes.

[11] If "Not Applicable" please explain why in the "Comments" section.

2. Is the review process efficient and effective? The review process includes several checks and balances that help filter out the best prospects for funding. The ad hoc reviews provided useful information about proposal merits, panel discussion improved awareness of critical proposal elements and risks, and program officers synthesized and summarized input from the reviewers and the panel. We did note variability in the quality of the reviews. We also observed that some of the reviewers failed to actually provide a rating, or provided two ratings. As a result, their ratings were marked as "R" in the data provided to COV members. We suggest that instructions to reviewers include more explicit directions.	Yes.
3. Do the individual reviews (either mail or panel) provide sufficient information for the principal investigator(s) to understand the basis for the reviewer's recommendation? In general, the reviewers captured issues that appeared significant and relevant in proposals and conveyed them effectively in their comments.	Yes
4. Do the panel summaries provide sufficient information for the principal investigator(s) to understand the basis for the panel recommendation? The panel summaries provide neat encapsulation of the panel's analysis. In cases where opinions were mixed, the program officer provided more detailed information on the opinions and clarified about how differences were resolved. These comments were informative and helpful. One possible weakness is that for some summaries of winning proposals' evaluation were relatively brief. In cases where reviewers had identified problems with winning proposals, a more thorough summary of the discussion of these problems might have been useful to authors of winning proposals.	Yes
5. Is the documentation for recommendations complete, and does the program officer provide sufficient information and justification for her/his recommendation? The comments were brief, but they were generally thoughtful and clearly presented.	Yes

6. Is the time to decision appropriate? The time to review is reasonable. It also appears that additional effort is being given to bringing the longest review times under 9 months. In 2006, no review took longer than 9 months, although the number of quick reviews (< 6 months) decreased.	Yes
7. Additional comments on the quality and effectiveness of the program's use of merit review procedures: In general, the program's review process is of high quality. Increased use of ad hoc reviewers improved the degree to which the review process targeted field experts and enhanced the quality of information available to the program officer. The reports from the ad hoc reviewers were usually of sound quality, and the practice of using ad hoc reviewers should be continued.	

A.2 Questions concerning the implementation of the NSF Merit Review Criteria (intellectual merit and broader impacts) by reviewers and program officers. Provide comments in the space below the question. Discuss issues or concerns in the space provided.

IMPLEMENTATION OF NSF MERIT REVIEW CRITERIA	YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE[12]
1. Have the individual reviews (either mail or panel) addressed both merit review criteria? In most cases, the individual proposal reviews addressed both criteria.	Yes
2. Have the panel summaries addressed both merit review criteria? Comments: Both criteria were always addressed.	Yes
3. Have the *review analyses* (Form 7s) addressed both merit review criteria? Comments: Review analyses invariably addressed both criteria explicitly.	Yes
4. Additional comments with respect to implementation of NSF's merit review criteria: The COV panel was pleased with the care and thoroughness with which the IOC program has implemented NSF's merit review criteria.	

[12] In "Not Applicable" please explain why in the "Comments" section.

A.3 Questions concerning the selection of reviewers. Provide comments in the space below the question. Discuss areas of concern in the space provided.

SELECTION OF REVIEWERS	YES , NO, DATA NOT AVAILABLE, or NOT APPLICABLE [13]
1. Did the program make use of an adequate number of reviewers? The data show an increase in 2006 over 2005 in the number of evaluations submitted by panelists (from 2.1 to 2.8) and by reviewers (from 1.5 to 3).	Yes
2. Did the program make use of reviewers having appropriate expertise and/or qualifications? Reviewers appear well-qualified.	Yes
3. Did the program make appropriate use of reviewers to reflect balance among characteristics such as geography, type of institution, and underrepresented groups?[14] Missing data do not allow a definitive answer. The gender, geography, and institutional-type for reviewers reflect a good balance.	Yes
4. Did the program recognize and resolve conflicts of interest when appropriate? COIs often lead to the disqualification of external reviewers, removing them from the pool while leaving no data for the COV's analysis. We did note several cases in which panelists removed themselves from evaluations due to conflicts.	DNA

[13] If "Not Applicable" please explain why in the "Comments" section.
[14] Please note that less than 35 percent of reviewers report their demographics last fiscal year, so the data may be limited.

5. Additional comments on reviewer selection:

All 2006 proposals received at least one external review. The average number of external reviews (excluding panel reviews) was 2.9 during 2006.

A.4 Questions concerning the resulting portfolio of awards under review. Provide comments in the space below the question. Discuss areas of concern in the space provided.

RESULTING PORTFOLIO OF AWARDS	APPROPRIATE, NOT APPROPRIATE[15], OR DATA NOT AVAILABLE
1. Overall quality of the research and/or education projects supported by the program. The quality of the work being funded by IOC is very high. It includes some of the best current research relating to organizations and innovation.	Appropriate
2. Are awards appropriate in size and duration for the scope of the projects? Review of jackets shows that IOC tracks these issues and asks for revision of budgets and/or project duration when appropriate.	Appropriate
3. Does the program portfolio have an appropriate balance of: • Innovative/high-risk projects?[16]	Appropriate
4. Does the program portfolio have an appropriate balance of: • Multidisciplinary projects? IOC's domain is inherently multidisciplinary, and attracts proposals grounded in a broad range of social and behavioral science disciplines. The PO's practice of negotiating co-sponsorships with other NSF programs is a good practice that magnifies the impact of IOC's limited budget.	Appropriate

[15] If "Not Appropriate" please explain why in the "Comments" section.
[16] For examples and concepts of high risk and innovation, please see Appendix III, p. 66 of the Report of the Advisory Committee for GPRA Performance Assessment, available at <www.nsf.gov/about/performance/acgpa/reports.jsp>.

5. Does the program portfolio have an appropriate balance of: • Funding for centers, groups and awards to individuals? IOC has insufficient funds for the support of centers. The mix of individual and collaborative awards seems appropriate.	Appropriate
6. Does the program portfolio have an appropriate balance of: • Awards to new investigators? A significant number of proposals that involved new PIs were funded.	Appropriate
7. Does the program portfolio have an appropriate balance of: • Geographical distribution of Principal Investigators?	Appropriate
8. Does the program portfolio have an appropriate balance of: • Institutional types?	Appropriate
9. Does the program portfolio have an appropriate balance of: • Projects that integrate research and education? IOC funds CAREER and RUI (Research at Undergraduate Institutions) awards. In addition, most IOC awards provide training and support for graduate students.	Appropriate
10. Does the program portfolio have an appropriate balance: • Across disciplines and subdisciplines of the activity and of emerging opportunities?	Appropriate
11. Does the program portfolio have appropriate participation of underrepresented groups? The program has an excellent track record of funding proposals from women investigators. We did not see grants to minority investigators (other than Asian), but this may be caused by the tendency of investigators to decline to provide information concerning group affiliation.	Yes – to an extent

12. Is the program relevant to national priorities, agency mission, relevant fields and other customer needs? Include citations of relevant external reports. The IOC program is exceptionally relevant to national priorities and NSF goals. The program focuses on innovation, which is critical to American competitiveness and a priority of our government -- see President George W. Bush, 2006, "The American competitiveness initiative: A continued commitment to leading the world in innovation". The IOC program is also central to other NSF initiatives, including the Science of Science and Innovation Policy, and the Dynamics of Coupled Natural and Human Systems. The cross-disciplinary, problem-solving orientation of the IOC program positions it to help solve many of the most important challenges of our time, including innovation, sustainability, the implementation and diffusion of new technologies, productivity, and organizational performance. The IOC program is poised to help the NSF and the nation meet the challenge of a recent National Academy of Engineering panel (see "Engineering Research and America's Future: Meeting the Challenges of a Global Economy", authored by the committee to assess the capacity of the U.S. engineering research enterprise, 2005).This report asserts that: " Leadership in innovation is essential to U.S. prosperity and security." The successful development, implementation and diffusion of innovation requires attention to its human, social, organizational and technological dimensions. These are dimensions of innovation that the IOC program is equipped well to address.	Yes
13. Additional comments on the quality of the projects or the balance of the portfolio:	

A.5 Management of the program under review. Please comment on:

1. Management of the program. We conclude that the IOC program is well managed. The current PO, Jacqueline Meszaros, is improving the administration of the program. She has increased the number of ad hoc reviewers, and she has improved the quality of the review panel. She has managed to reduce the number of proposals that take more than 9 months to review. She is developing new research topics to pursue in future years, and she is actively engaged in outreach to the most relevant groups of academic researchers. All in all, the program seems to be on the right course.

2. Responsiveness of the program to emerging research and education opportunities.

The program officer is attempting to integrate new research opportunities into the program. She has been soliciting advice about how to shape research on environmental protection and sustainability. She is familiar with work on new digitally mediated forms of collaboration, and is working to formulate a research agenda in this area.

3. Program planning and prioritization process (internal and external) that guided the development of the portfolio.

The main criterion for inclusion in the portfolio of IOC-funded research was the scholarly excellence of the proposal. Excellence was determined through outside review, followed by analysis and synthesis by panel of reviewers who presented their recommendations to the program officer.

The focus on merit-based selection did not prevent the program's awards from containing a good mix of scholars with different attributes. Roughly 50 per cent of the proposals include women as principal investigators. Both junior and senior scholars received grants, and different geographical areas were effectively represented.

4. Additional comments on program management:

The COV members believe that the program could and should be enhanced by increasing the funds available for awards, and by placing fewer large bets on single individuals at early career stages. We recommend that the amount of funding directed to career grants be reduced.

The COV was very positive about the assumption by the SBE directorate of stewardship of the IOC program and the refocusing of the program's mission on fundamental research. We were also pleased to see the relaxation of certain constraints on funding and the broader range of methods in funded work. We believe that the IOC should have the flexibility to fund research using a diverse menu of theories and empirical methods.

PART B. RESULTS OF NSF INVESTMENTS

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The NSF mission is to:

- promote the progress of science;
- advance national health, prosperity, and welfare; and
- secure the national defense.

To fulfill this mission, NSF has identified four strategic outcome goals: Discovery, Learning, Research Infrastructure, and Stewardship. The COV should look carefully at and comment on (1) noteworthy achievements based on NSF awards; (2) ways in which funded projects have collectively affected progress toward NSF's mission and strategic outcome goals; and (3) expectations for future performance based on the current set of awards.

NSF investments produce results that appear over time. Consequently, the COV review may include consideration of significant impacts and advances that have developed since the previous COV review and are demonstrably linked to NSF investments, regardless of when the investments were made.

To assist the COV, NSF staff will provide award "highlights" as well as information about the program and its award portfolio. Since relevant aspects of the Stewardship goal are included in Part A, the COV is not asked to respond to that goal in Part B.

B. Please provide comments on the activity as it relates to NSF's Strategic Outcome Goals. Provide examples of outcomes ("highlights") as appropriate. Examples should reference the NSF award number, the Principal Investigator(s) names, and their institutions.

B.1 OUTCOME GOAL for Discovery: "*Foster research that will advance the frontier of knowledge, emphasizing areas of greatest opportunity and potential benefit and establishing the nation as a global leader in fundamental and transformational science and engineering.*"

We believe that IOC is uniquely positioned to address a number of topics of profound importance to the nation's scientific, academic, and policy-making sectors. These include:

- Understanding and guiding the emergence of new industries and sectors (e.g., CleanTech, MEMS, and Nanotech).
- Investigating new organizational forms enabled by advances in information technology and cyber-infrastructure (e.g., open-source business models, inter-organizational partnerships based on web-enabled transparency).
- Understanding the role that geographic (and virtual) clusters play in catalyzing and accelerating innovation.

Recent IOC awards to senior scholars have yielded a well-received translation of interdisciplinary work for non-scientists, Watts' book, ***Six Degrees*** (Watts, Columbia Univ., SES-0094162): as well as an analysis of organizational and managerial antecedents of public schools' effectiveness that has directly shaped public policy, Ouchi's book, ***Making Schools Work*** (Ouchi, UCLA, SES-0115559).

CAREER awards to young scholars have yielded promising cross-level research, including an intriguing application of the "small world" notion to cognitions of individual problem solvers (Schilling, New York University, SES-0234075), and an analysis of the role of shared mental models in influencing group task accomplishment (McComb, Univ. of Massachusetts, 0092805). We applaud

IOC's support of small, focused conferences that catalyze journal special issues. For instance, the conference, "Making Organizational Designs Effective," (Dunbar, New York University, 405384) led to a well-received special issue of ***Organization Science*** on this topic. One paper included in the issue was selected by Emerald Management Reviews' as among the 50 best articles on management published in 2006 by Emerald Management Reviews' Citation of Excellence.

Another exemplary IOC award supported a conference focused upon "Frontiers of Organization Science" (Schoonhoven, Univ. of California Irvine, SES-0125286). This small conference challenged senior organizational scholars to envision the kinds of organizational research that NSF ought to support in the future, and to begin the work of erecting the theoretical underpinnings for this sort of research. In keeping with the theme of theoretical rejuvenation, all of those submitting papers were asked to include as coauthors one senior scholar and at least one recently minted scholar. The result was a two-part special issue of ***Organization Science*** that offers promising new directions for the field. For example, one of the papers published in this special issue, itself reporting IOC-funded research (Meyer, Univ. of Oregon, SES-0217711), urges NSF to support research proposals that: *(1)Take time seriously. (2) Preserve historical context. (3) Incorporate nonlinear concepts in evolutionary theorizing. (4) Undertake multilevel research.*

B.2 OUTCOME GOAL for Learning: ***"Cultivate a world-class, broadly inclusive science and engineering workforce, and expand the scientific literacy of all citizens."***

How the U.S. workforce will continue to learn and develop is a critical issue for the health of the U.S. economy. Several IOC-funded projects are considering how the globalization of white collar work will affect learning and productivity improvement. These programs use different mechanisms to advance our understanding of these issues. One is a collaborative research project that brings together a organizational psychologist with a business strategy scholar to study knowledge transfer among teams that are connected by electronic media (Sawyer, Univ. of Deleware, SES-522772). Another studies the formation of new educational institutions designed to take advantage of opportunities created by telecommunication technology (Shuman, Univ. of Pitsburgh, SES-431355). A third funded a conference at Duke University provided a clearinghouse for new ideas about how firms will recognize and use valuable new innovations (Lewin, Duke Univ., SES-522359).

B.3 OUTCOME GOAL for Research Infrastructure: ***"Build the nation's research capability through critical investments in advanced instrumentation, facilities, cyberinfrastructure and experimental tools."***

The program has provided a framework of tools and techniques for evaluating social networks. For example, the projects by Corey Phelps, Melissa Schilling, and Duncan Watts all develop or extend ways of measuring network relationship and create means for relating network forms to important outcomes.

In coming years, the program could further develop tools for investigating the explosive emergence

of open source software, knowledge sharing communities, and social networking. In each area, the program could help scholars identify what are the important constructs and create consensus on their measurement. The program could also help scholars gather data from natural experiments or create real experiments of new forms of collaboration.

PART C. OTHER TOPICS

C.1 Please comment on any program areas in need of improvement or gaps (if any) within program areas.

As the only NSF program that is targeted on understanding organization-level phenomena, IOC should be receiving proposals from a larger share of the most eminent senior scholars and the most promising young scholars. We recommend an outreach campaign to communicate with prospective grant applicants that might include:

- Promoting IOC to leaders of selected subunits of professional associations (e.g., INFORMS College of Organization; Academy of Management's TIM, ENT, MOC, OMT, ENT, and ONE Divisions.)
- Sending RFPs to editors and editorial board members of journals that publish research on organization and innovation, with particular focus on interdisciplinary journals such as ***Research Policy*** and ***Organization Science***.
- Continuing to fund small conferences such as Dunbar's "Organization Design" conference, and Schoonhoven's "New Frontiers" conference.
- In addition funding small conferences, IOC should encourage the program's grant recipients to evangelize on behalf of the program.
- Consider supporting doctoral student workshops at conferences, and providing seed funding for dissertation research.

C.2 Please provide comments as appropriate on the program's performance in meeting program-specific goals and objectives that are not covered by the above questions.

C.3 Please identify agency-wide issues that should be addressed by NSF to help improve the program's performance.

C.4 Please provide comments on any other issues the COV feels are relevant.

Research on organizations and sustainability

There are several promising directions for research on organizations and sustainability. We highlight three of these, but many more would be appropriate for IOC funding.

Organizations for voluntary self-regulation. Promising research on organizations and sustainability is redefining the relationship between governance and organizations. Where scholars once saw the rules of competition as determined by government

regulation, new research focuses on how firms and stakeholders shape the structures that govern their behavior. Examples include organizations that have been formed to coordinate contributions to a common effort, protect a common reputation or social standing, or ensure the maintenance of quality standards. Research on these structures often straddles the boundary between research on sustainability, networks, and collaborative organizational forms. Examples include:

- Codes of conduct and practice like the Equator Principles which govern project finance procedures
- Certification programs like EMAS or ISO 14000
- Microenterprise groups that enforce repayment of small-scale loans
- Open source communities which regulate the quality of computer code contributed to open-source software projects
- Communities of scholars to provide and police new innovative ideas. The well-known statistics software company STATA, for example, relies on a community of contributors to create and submit programs which allow new statistical analysis.

Intermediate organizational forms. The traditional classification of organizations into for-profit and nonprofit categories is breaking down. Increasingly, firms and stakeholder groups are aligning to pursue jointly beneficial objectives. Examples include:

- Oversight institutions like the Marine Stewardship Council
- New special purpose entities to allow the use of market instruments to value eco-system resources.
- New models of philanthropy that hybridize public and private modes of organizing, such as Google.org and microfinance organizations.
- Some firms are morphing into virtual brokers of global supply chains that link NGOs, governmental organizations, and private firms.

Mechanism design for fostering environmental protection. Environmental and social issues are often hard to measure and cause and effect are often displaced both in time and distance. How then can organizations provide the right incentives to actors that will determine the organization's impact on the environment? Research could consider the role of trust, incentives, culture, citizen oversight, and innovative financial instruments. For instance, securitized agreements could allow emerging third-world economies to share with first-world investors future profits that are likely to flow from genetic blueprints, aquifers, watersheds, and fisheries.

Knowledge transfer to the world's poor. Many environmental problems will be greatly affected by the development path of the world's poorest people. New organizational forms, such as microfinance and microenterprise, are emerging that may help shape such development. Organizations are also developing methods for transferring knowledge and innovations to the world's poor, and also to capture innovations that may arise from emerging economic actors.

Knowledge Transfer and Organizational Learning

By transferring knowledge, one unit of an organization benefits from knowledge acquired by another. Globalization and the increased use of distributed or multi-unit organizations make knowledge transfer critical to firm competitiveness. More research is needed on questions about knowledge transfer.

- What factors facilitate (or impede) knowledge transfer?
- What are effective mechanisms for knowledge transfer?
- What role does IT play in facilitating knowledge transfer?
- What role does co-location or geographic agglomeration play in facilitating transfer?
- What role does shared identity play in facilitating knowledge transfer?

Distributed Cognition, Transactive Memory, and Mental Models

Work in organizations is increasingly done by groups or collections of individuals. Understanding how distributed cognition and shared mental models develop as well as their impact on team performance are important issues that would benefit from additional research.

Organizational Design

- How should organizations be designed to promote resiliency?
- How should organizations be designed to promote both innovativeness and efficiency?
- How should organizational experience be designed so that organizations can learn effectively from it?

C.5 NSF would appreciate your comments on how to improve the COV review process, format and report template.

SIGNATURE BLOCK:

Linda Argote
Andrew A. King
Alan D. Myer

_____

For the IOC
Linda Argote
Chair

Law and Social Sciences

FY 2007 REPORT FOR
NSF COMMITTEES OF VISITORS (COVs)

Program: Law and Social Sciences (LSS)
Number of actions reviewed: Awards: 62 Declinations: 62 Other: 0
Total number of actions within Program during period under review: **Awards: 137 Declinations: 341 Other: 26**
Manner in which reviewed actions were selected: A complete list of all competitive proposals was generated for the COV period. The list was sorted by fiscal year and then by award status (awarded or declined). The dissertations were then sorted from the awarded and declined lists for a total of 4 sub-lists for each fiscal year. Each of the sub-lists were then sorted alphabetically and assigned a number from one (1) down the list. Using a random list of integers the sample was drawn from each of the twelve sub-lists by selecting the first ten (10) proposals on each of the integer lists.

INTRODUCTION

We examined a variety of materials, including a random sample of LSS actions during the period 2004-2006 (we looked at 124 jackets in total, including 62 awards and 62 declinations); a selection of SGERs; NCOVR reports; a variety of information compiled in loose-leaf binders and a CD-ROM compiled by the Program which included more than 80 prior project final reports received from 2004-2006 and project highlights selected by the program, Program statistics, previous COV assessments; supplementary statistical information supplied during the course of the meeting, and panel rankings of proposals. Some of these materials were supplied by the Program Officer in advance or were available when we arrived; other material was requested by committee members as we deliberated. Full information about the 124 sampled proposals was available in the NSF e-jacket system (including the full-text of the proposals, all reviews, panel summaries, the projects officer's analysis and recommendation (Form 7) and assorted other materials). COV members considered the materials in private and the Program Officer was available to answer question.

Committee members were unanimous in concluding that the Program review process was efficient, fair and effective, and the Program well-managed. We believe the Program is meeting its obligation to promote sound science in the research it funds. The Law and Social Science Program is making key contributions to the development of scientific knowledge which has a broader impact on society. The Program successfully facilitates excellent research, contributes to the development of research tools needed for the advancement of state-of-art scholarship, fosters a diverse community of scholars, successfully manages a rapidly growing portfolio and fosters research that advances the frontiers of knowledge and enhances the nation's position as a leader in understanding the role of law, legal institutions, and legal processes in developing and promoting democracy and democratic principles – which, in turn, advance national security.

The LSS Program supports research in such areas as legal decisionmaking, the development and preservation of individual rights and the rule of law, the development and functioning of international legal institutions, the control of crime and violence in domestic and international settings, and improving the quality of scientific and lay evidence. The Program has been particularly effective at developing databases and human resources as infrastructure for future research and education

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PART A: INTEGRITY AND EFFICIENCY OF THE PROGRAM'S PROCESSES AND MANAGEMENT

A.1 Quality and Effectiveness of Program's Merit Review Procedures

The COV was impressed with the appropriateness (A11), efficiency, and effectiveness (A12) of the review mechanism as reflected in panel and ad hoc reviews, panel summaries, and Form 7s.

Although not every review was of high quality, when considered as a package the reviews almost invariably addressed core issues concerning the adequacy of the research design, the relation of the reviews almost invariably and effectively assessed the relation of proposed research to previous scholarship, evaluated the ability of the investigator and co-P.I.s to bring proposed research to a successful conclusion, and considered the value of the scholarly contributions and broader impacts of the proposed work.

The jackets we examined generally included two or more thoughtful ad hoc reviews—in addition to two thoughtful panel reviews--that provided clear substantive and methodological feedback to P.I.s and guidance to the panel and Program Officer (A13). Panel summaries were generally of high quality and notably included comments addressed to any ad hoc reviews that contradicted the panel's impressions and recommendations. The reviews and panel summaries identified important issues in that would help P.I.s understand the panel recommendation (A14) and ultimate decisions about funding (A15). In many instances the reviews provided constructive recommendations to P.I.s about ways in which to improve research.

With respect to one aspect of efficiency (A12), the COV noted that the 2003 COV reported that the time to decision (dwell time) for competitive proposals was averaging 4 months—that number has crept up in the period under review: from 5.2 months in 2004 to 5.8 months in 2006. The increase likely reflects, in part, the growing number of proposals that must be handled by the Program Officer—these totaled 142 in 2004 and 178 in 2006 (a 25% increase). The total number of proposals submitted during the period of 2004-2006 was 504 (478 competitive) as compared to 373 proposals in the 2001-2003 timeframe (a 35% increase). The lengthening dwell times and growth in numbers of proposals beg the question of whether the Program office is adequately staffed and whether dwell times might be reduced by providing the Program more support.

The COV also discussed the possibility that dwell times might be reduced by more rapid delivery of completed proposals from the Fastlane system to panel members and a consequent advance in the timing of the review panel meetings.

The Program Officer indicated that "must fund" or "should fund" proposals are all funded and that "could fund" applications are either not reached or only a small portion are funded. The COV is concerned that substantial numbers of worthy proposals are not being funded but the COV does not have a basis for assessing whether this situation is consistent with the experience of other panels or whether the situation indicates that the

LSS Program is not adequately funded. We do know from the Program Officer's Overview that the funding rate for competitive LSS proposals has been averaging about 23%--which appears to be comparable to the overall rate for NSF.

A.2 Implementation of NSF Merit Review Criteria

Our extensive review of the e-jacket material indicates that reviewers addressed both the intellectual merit and broader impacts of each grant proposal. Generally, we found that even attention was directed to both criteria in formulating recommendations as to the desirability of funding the proposed research. Reviewers' decisions to decline funding frequently cited "inadequate or poor" intellectual merit and/or an uncertainty in the ability of the proposed research to produce the promised impact. On the whole, reviewers shared agreement on the extent to which the proposed research met NSF's review criteria. In the few cases in which there was some disagreement, the panel summary explicitly dealt with the lack of consensus. We applaud the reviewers' conscientious implementation of NSF's merit review criteria.

We found that panel summaries consistently addressed the intellectual merit and the impact of the proposed research. Panel summaries accurately documented the reviewers' points and concerns, noting any disagreement in assessments among the panel members. The reviewer analyses (From 7s) consistently addressed both merit review criteria. We found the reviewer analyses accurately noted the strengths and weaknesses of the proposed research as indicated in the panel summaries. In the co-review proposals included in our sample, we found that the reviewer analyses (Form 7s) consistently described agreements and any disagreements in assessment across the two panel reviews. In cases in which there were substantial differences in the reviewers' recommendation for funding, the reviewer analyses never failed to address the discrepancies.

A.3 Selection of Reviewers

1. Did the program make use of an adequate number of reviewers?

   The program does indeed make use of an adequate number of reviewers. The required number of reviewers for a decision by an NSF program officer is three. We found one instance in which a proposal was decided upon with fewer than three reviewers, and this was a dissertation proposal for which the program officer was unable to secure three formal reviewers and called upon the panel as a whole to serve as a collective third reviewer so that the proposal could be processed. He also sought and secured the permission of his division director for this minor variation from the "rule of three." In every other instance the minimum of three reviewers evaluated each proposal. In most cases, the number of reviewers well exceeded three, averaging around six.

The COV does think the program officer should make every effort to secure more than the minimum of three reviews for regular research proposals (though not necessarily for dissertation proposals) to guard against the possibility that a single idiosyncratic reviewer could unduly affect a proposal's fate by giving it an extreme rating at variance with other ratings. We encourage the panel and the program officer to be diligent to guard against this possibility.

2. Did the program make use of reviewers having appropriate expertise and/or qualifications.

   The reviewers used were appropriately, indeed well, qualified to assess the proposals they were assigned. The difficulty of finding appropriate reviewers is perhaps especially great for a program officer in a truly interdisciplinary program like Law and Social Science, however. The COV and the program officer discussed constructive ways in which the program officer can improve his ability to select the best possible reviewers and entice them to submit reviews. For example, the program officer might take steps to further encourage P.I.s to suggest reviewers and to solicit suggestions from prior awardees of "up and coming" scholars who would make reviewers.

3. Did the program make appropriate use of reviewers to reflect balance among characteristics such as geography, type of institution, and underrepresented groups?

   The evidence indicates that pool of reviewers was broadly representative on all these grounds.

4. Did the program recognize and resolve conflicts of interest when appropriate?

   Proposal records indicated conflicts of interest were always recognized and treated in accordance with NSF rules. We saw no reason to believe there were any problems on this score.

5. Additional comments on reviewer selection.

   None.

A.4 Questions concerning the resulting portfolio of awards under review.

1. Overall quality of the research and/or education projects supported by the program.

   The overall quality of the projects supported by the program is excellent. We believe this will become evident when we discuss the substance of selected noteworthy proposals below.

2. Are awards appropriate in size and duration for the scope of the projects?

   Given the size of the Law and Social Science budget and the demands placed by the research community on that budget, the awards are appropriate in size and duration. There is always pressure on the program officer to negotiate proposal budgets downward in order to have sufficient funds to make awards to even the most deserving proposals, much less to proposals that are rated by the panel as less deserving, but still fundable. The evidence suggests that, in most instances, awardees are still able to accomplish the objectives of the proposed with the reduced budgets. There are some cases, however, where budget decreases do have an effect on what can be accomplished by the researcher or the time required to accomplish its objectives. The program officer's review analysis, normally, appropriately notes this.

   Assuming the counterfactual of a significantly increased budget for Law and Social Science, there is little doubt that the scope of the projects that would be proposed and that could be funded would increase, to the benefit of our knowledge about law and legal institutions and processes.

3. Does the program portfolio have an appropriate balance of innovative/high-risk projects?

   We did not see in our sample of proposals any that were remarkably innovative or high risk. However, it is clear that the program has funded such proposals in the past, and that it is open to doing so in the future. The COV also noted that by committing a portion of its scarce funds to the support of dissertation projects, the program is taking risks on the ability of our most junior researchers to produce good and, possibly, even innovative research.

4. Multidisciplinary projects?

   The Law and Social Science program is a highly inter/multidisciplinary program. The research it funds, though most typically conducted by scholars investigating the questions and using the methods of their traditional disciplines, is very frequently of multidisciplinary interest. The program also regularly co-reviews proposals with other programs because they have multidisciplinary appeal.

5. Funding for centers, groups and awards to individuals?

   The program's portfolio includes awards to individuals, teams of research collaborators, and research centers and firms (the American Bar Foundation, Policy Research Associates), for example.

6. Awards to new investigators?

   The data on the program's awards supplied in the program officer's narrative and elsewhere indicates that new investigators (including dissertation students) are the majority (76%, in fact) of proposers. Excluding dissertation proposals, the success rate for new investigators (19%) is less than that for established investigators (32%). This difference appears to the COV to only what one would expect, given the differences in experience between the two groups.

7. Geographical distribution of Principal Investigators?

   The program received proposals from an appropriately wide range of states, a range that appears to reflect the size of the populations and research communities in the states. The COV was impressed with the program officer's efforts to encourage ad secure support for proposals from EPSCOR states, which are generally somewhat disadvantaged in their competitiveness by the size of their populations and research communities.

8. Institutional types?

   Not surprisingly, Research Intensive Ph.D. institutions submitted the largest share of proposals and were funded at a higher rate than other categories of research institutions (with some small N exceptions). However, the difference in the funding rate for these institutions and (non-research intensive) Ph.D. institutions was not very large.

9. Projects that integrate research and education

   The program's support for doctoral dissertation research projects and for funds to support graduate research assistants participating in regular projects a the program's major investment in projects that integrate research and education. The program also funded a small number of proposals under NSF's REU and RUI initiatives that supported the involvement of undergraduates in research.

10. Across disciplines and subdisciplines of the activity and of emerging opportunities

    It is difficult to know what the appropriate balance is for a multidisciplinary field like Law and Social Science, but it is clear that the program receives and funds proposals from a wide variety or disciplines and research orientations. The program has funded (an appropriately small) number of SGER proposals to pursue important, but ephemeral, research topics.

11. Does the program portfolio have appropriate participation of underrepresented groups?

As always, statistics on minority involvement are somewhat uncertain, given that they rely on self-reports of minority status, which P.I.s often do not provide. Available data show that the program received 48 proposals from minority P.I.s during 2004-2006, about 9 percent of the total of all proposals. While it is certainly desirable that this number increase, this submission rate is not a bad result, given the continued underrepresentation of minority researchers in the program's community. Only 15% of these proposals received funding, a rate that is lower than the overall funding rate for competitive LSS proposals (23%), but higher than that for the Foundation as a whole.

12. Is the program relevant to national priorities, agency mission, relevant fields and other customer needs? Include citations of relevant external reports.

    Law, legal institutions, and law-related processes are crucial in the operation and maintenance of effective democratic government and effective societies and economies. Constitutional and statutory laws, citizen rights and liberties, the provision of public order through law enforcement and courts, and, more generally, the rule of law are all central to societies, economies, and polities. Scientific understanding of the operation of these phenomena at levels ranging from the individual to the international community is at the heart of the efforts of Law and Social Science program researchers. We illustrate some of these matters in our discussion of the program's funded research in Part B below.

13. Additional comments on the quality of the projects or the balance of the portfolio:

    None.

A.5 Program Management

1. Management of the Program

   LSS Program Narrative indicates that 504 proposals were submitted for review during FY 2004-2006. Of these proposals, 478 were competitive. It is noteworthy that the LSS experienced a 25% increase in competitive proposal during FY2004-2006 and a 35% increase as compared to the prior three-year period. COV notes that during the FY2004-2006 period there was a change in program director. Noting the substantial increase in competitive grants, combined with change in program director, we are not alarmed by the modest increase in mean months of dwell time reported for FY 2004 and the following two year period, but as observed earlier this trends do raise concerns about the adequacies of the research allocated to the LSS Program.

   We note that the program director successfully secured an average of more than 6.4 reviewers per proposal. Our review of the e-jacket material clearly indicated

that the program director was successful in constructing substantively and methodologically qualified panel of reviewers. We note the program director successfully constructed a gender-balanced group of panelists who represented some of the most accomplished scholars in the disciplines of political science, sociology, law, psychology, anthropology, economics, and public policy. The panelists were drawn from highly respected private and state research universities.

2. Responsiveness of the program to emerging research and education opportunities.

We see examples of a responsiveness of the program to emerging research and education opportunities. For example, LSS Program funded the Law and Society Summer Institute on the Intersection of Rights and Regulation: New Directions in Sociolegal Scholarship (Darien-Smith). In FY2006, the Program funded a workshop exploring the judicial mind that brings together a group of scholars to discuss research at the intersection of judicial behavior and social cognitive and personality psychology.

3. Program planning and prioritization process (internal and external) that funded the development of the portfolio.

   Given the bottom-up enterprise reflected at NSF, research ideas are generated from the scholarly community. As a program within this structure, the LSS Program provides a funding mechanism that supports substantively and methodological sound research on the studies of law and law-like systems, legal institutions in criminal and civil adjudication, legal processes, and behaviors nationally and internationally. Consistent with the above noted nature of NSF, the LSS program relies on a diverse group of accomplished scholars to decide the priority placed on research topics. Our review of e-jacket material, especially the panel reviewer documents and the review analysis (Form 7s), reflects the bottom-up nature of the process of management review routinely conducted by the LSS Program.

4. Additional comments on program management

   <u>Program Officer Position</u>:

   As was true of the 2003 COV, the current COV discussed whether the long-standing policy of a "rotating" Program Officer drawn from one of the Program's constituent research communities is appropriate. The COV noted that LSS is the only program in SBE with a rotating Program Officer and mused on the possibility that this places the program at a disadvantage when competing for resources within NSF and places a greater managerial burden on rotators who must learn the system anew every two years. The COV is not recommending a move to a permanent Program Officer at this point but does recommend that once the program is allocated a second Program Officer, there should be one permanent Program Officer and one rotator.

The COV also noted that almost all recent Program Officers have been drawn from a single discipline (political science). This COV agrees with the 2003 COV that by noting the lack of disciplinary diversity in this leadership position, the COV is not questioning the qualifications or skills of the individuals who have served as Program Officer. Nonetheless, the highly diverse disciplinary makeup of the Program's constituency underscores that every effort should be made to generate candidates from a variety of disciplines.

PART B. RESULTS: OUTPUTS AND OUTCOMES OF NSF INVESTMENTS

B.1 — Outcome Goal for DisCOVery

The COV review of a sample of supported research projects reveals that the LSS Program has been quite willing to exploit research opportunities, to push the frontiers of scientific knowledge and to emphasize research in areas likely to produce the greatest scientific and policy benefits.

We see examples of a willingness to exploit research opportunities in the portfolio of research projects supported by LSS—many of which are clearly addressing current scientific and policy issues--including projects such as

- P.I. Bowers research on the role of mitigation evidence in jury decisionmaking in death penalty cases—a critical matter in light of the Supreme Courts long series of cases involving juries and the death penalty and particularly recent cases which have shifted decisionmaking responsibility from judges to juries;
- P.I. Hagan's very timely research on the Darfur atrocities and
- his research of the effects of incarceration on family members—critical research at a time when American incarceration rates are at all-time highs;
- P.I. Garcia's research on factors that influence eyewitness identification accuracy—research that has acquired growing significance in light of the fact that eyewitness error is implicated in 75% of the nearly 200 DNA exculpations reported to date.

We see similar efforts to exploit research opportunities and expand research frontiers in the dissertation research being supported by LSS (dissertations constituted 25%, 18% and 25% of funded projects during the 2004-2006 timeframe). Examples of relevant research include

- P.I. Sak's research on teaching jurors about the use of scientific evidence—a critical issue in light of the Supreme Court's refashioning of evidence law in *Daubert* and related cases governing the evaluation and admissibility of scientific evidence;
- P.I. Vance's research looking at human trafficking--with a focus on New York;
- P.I. Marshall's research on the efficacy of mandatory arrest in domestic violence situations and
- P.I. Gilligan's research on the negotiation of international multilateral agreements.

In sum, LSS supports research across a wide range of substantive topics, across a wide range of methodologies, and across a wide range of levels of analysis. In the 2004-2006 period supported research was most commonly directed (in declining frequency) to the study of courts and judging, the development and assertion of legal rights, jury decisionmaking, eyewitness reliability, gender-based discrimination and violence, administrative law, international law, and immigration law. Methodologies included database creation, mathematical modeling, archival analyses, experimental studies, observational studies and anthropological field work. Analyses were directed at individual decisionmaking, group decisionmaking, administrative law practices, police practices, various forms of criminal behavior and frequently at the intersection of two or more of these levels of analysis. In terms of settings, the vast majority of research examined legal behaviors in the American context, but significant numbers of projects focused on Europe, Latin and South America, and Southeast Asia.

B.2 — Outcome Goal for Learning.

Under NSF's strategic outcome goal for learning, the LSS Program has funded a nontrivial number of research projects that contribute to cultivating a world-class work force that promises to expand the scientific literacy of all citizens as it pertains to legal institutions, criminal adjudication and the protection of constitutional rights. As members of the COV, we want to express the importance of funding research that seeks to expand citizens understanding and appreciation of the important linkage between legitimacy of legal structures and processes and the maintenance and protection of civil liberties and rights in a democratic society. We note several examples of funded research projects that we find particularly relevant to NSF's strategic outcomes goal for learning.

- Simona Ghetti's "False-Memory Rejection: The Role of the Memorability-Based Strategy" (#02411265) is a study of the psychological processes through which persons establish that an event has not occurred. This research is particularly relevant to forensic evidence and witness testimony both the criminal and civil adjudication. This research produced invaluable findings about the psychological mechanisms that offer potential protection for children and adults from forming false memories that could then later be the basis of false testimony. From an applied perspective, learning the processes and mechanism related to false-memory rejection is important to the avoidance of incidences of serious miscarriage of justice.

- Scott Gronlund's "Sequential Lineups: Contributions of Distinctiveness and Recollection" (#0240182) is an experimental study of the determinants of accurate identifications of suspects. They found that accurate positive identifications are not automatic. From an applied perspective, this study produced procedural safeguards that increase the accuracy of eyewitness identification in suspect lineups. Clearly, instituting safeguards against false identification of criminal suspects is vital to the legitimacy of the criminal adjudication system in a democratic society that values individual liberty.

- A final study we highlight as an example of contributing to NSF's strategic goal of learning is found in John Gastil's "Jury Deliberation and Civic Engagement" (#0318513). In this study, the principle investigator empirically tested the basic claim of participatory democratic theory that civic engagement increases a person's political efficacy and thereby enhances future political participation. Gastil uses participation in jury service to examine and test the above theory. His findings indicate that serving on a jury is a transformative experience that does increase the rate of participation in public life. From an applied perspective, this research contributes to citizen's understanding of the importance of jury service and how such service promotes civic engagement both nationally and internationally. As Gastil notes, "Our study suggests that constitutional theorists – and the U.S. Supreme Court – correctly surmised (in the absence of any real evidence) that jury service plays an important role in encouraging civic engagement."

B.3 — Outcome Goal for Research Infrastructure

During the 2004-2006 time-period, the LSS Program has supported the construction of a number of major databases that have yielded and promise to continue to produce significant advances in knowledge. These databases create a foundation for empirical research that would not otherwise be possible. Among the database projects completed during 2004-2006 period and generally available through the ICPSR and the internet are:

- P.I. Epstein's database of U.S. Supreme Court justices which contains over 200 variables in five categories: identifying information, background characteristics and personal attributes, nominations, service on the Court and departures.
- P.I.s Hall and Brace's database on the decisions of the fifty state supreme courts for the 1995-1996 time-period, including data (over 400 variables) on 429 justices and 12,000 cases.
- P.I. Bornstein's meta-analytic dataset on 469 experimental studies of face recognition and eyewitness identification (over 100 variables).
- P.I. Kauffman's electronic versions of 2000 records and briefs from the 300 most important U.S. Supreme Court cases—over 150,000 pages of materials.
- P.I. Haire's update of the database of U.S. Court of Appeals decisions (over 200 variables). The original database covered 1926 to 1996 and was updated to 2002.
- P.I. Haynie, Sheehan, Songer and Tate's database of decisions (and information about the issues and parties) from of the top courts of 11 nations around the world (including UK, Canada, South Africa, Zambia, Tanzania, Mexico).
- P.I. Avraham's database of 20 categories of state tort law reforms enacted, revised or repealed in the 50 states between 1970 and 2004 (currently being updated to 2005)

Among the database projects currently under way are:

- P.I. Spaeth's database on agenda setting in the Burger-era Supreme Court (1969-1985).
- P.I. Arceneaux, Bonneau and Brace's Individual-level database on state supreme courts.
- P.I.s Spaeth and Epstein's addition of the Blackmun papers to the U.S. Supreme Court database
- P.I.s Hood and Emmert's database on judicial election campaigns for positions on Texas courts.

These infrastructure projects are a unique construction by the Program and contribution to the knowledge and understanding of law and law-like institutions; no other nation has this wealth of systematically collected, valid, and reliable data available to citizens and scholars alike with which to explore the functioning and behavior of American and foreign courts. It is a unique achievement.

Part C: Other Topics

3. Please identify agency wide issues that should be addressed by NSF to help improve the program's performance

   After extensive review of review material and process, COV identifies two agency-wide issues that should be addressed by NSF to help improve the program's performance. First, we suggest that further attention should be given to explaining to researchers the importance of including an explicit identification and specification of the broad impact of their proposed research. COV notes that most panel reviewers addressed this issue but not in the proper location nor to the degree of desired detail. We suggest that the Fastlane process require reviewers explicitly address the broader impact component as a requirement for the review to be successfully submitted.

   Second, we suggest that the ejacket provide clearly information about the budget amounts requested and awarded. Information should be available to more easily facilitate an evaluation of budget adequacy.

SIGNATURE BLOCK:

Neal Tate
Celesta Albonetti
Steven Penrod

_____
For the Political Science COV
Neal Tate
Chair

Methodology, Measurement and Statistics

FY 2007 REPORT FOR
NSF COMMITTEES OF VISITORS (COVs)

Program: Methodology, Measurement and Statistics (MMS)
Number of actions reviewed: Awards: 38 Declinations: 39 Other: 0
Total number of actions within Program/Cluster/Division during period under review: Awards: 106 Declinations: 241 Other: 47
Manner in which reviewed actions were selected: For the proposal review and decision process, the COV examined 77 jackets that were randomly selected by NSF from the set of proposals that did not have a conflict of interest with the COV members. The 77 jackets were evenly split between awards and declinations and between the three fiscal years. All jackets were primary in MMS since most of the paperwork for secondary proposals resides in other programs. The COV also used the materials supplied by NSF and additional statistics it requested. These included summaries of final reports during the FY04-FY06 period, summary statistics generated by NSF on the review process and budgets, and several other contextual pieces of information requested by the COV.

INTRODUCTORY REMARKS

> The Program in Methodology, Measurement, and Statistics (MMS) was reviewed by Charles Manski, Nathaniel Schenker[17], and Trisha Van Zandt for the FY04-FY06 period.

Well-grounded methodologies for the collection and analysis of data on human behavior and outcomes are essential to successful research in the social, behavioral, and economic sciences. The MMS program actively cultivates the development of such methodologies and thus provides critical support for the Social, Behavioral, and Economic Sciences (SBE) Directorate's mission.

The COV has enormous respect for the accomplishments of the MMS program. The program's excellent condition owes much to Program Director Cheryl Eavey's effectiveness and to her dedication to promoting the advancement of the social, behavioral, and economic sciences. The program addresses its goals through funded interdisciplinary research to pursue innovations in sciences that intersect with SBE's interests, intellectual exchange at workshops and conferences on emerging issues, and essential infrastructure support. MMS acts as an important catalyst for potentially transformational developments in measurement, methodology, and statistics by supporting high-quality, and in some cases, high-risk projects. Remarkable amounts of

[17] The findings and conclusions in this review are those of the authors and do not necessarily reflect the views of the National Center for Health Statistics, Centers for Disease Control and Prevention (Schenker's employer).

research and community resources are supported by MMS, typically at modest and possibly insufficient levels given the program's limited budget.

Dr. Eavey manages MMS with a sophisticated understanding of how to maximize the impact of her limited resources. Her proposal handling is timely and extremely fair. Her award recommendations are detailed and judicious. Her ability to cooperate effectively with many other programs at NSF is quite remarkable. The members of the COV evaluating MMS have the highest regard for her work and admiration of her skills as the Program Director.

The MMS program is inherently multidisciplinary. Quantitative methodological research funded by MMS has benefits to many different discipline-based programs. Conversely, many discipline-based programs receive proposals that have strong methodological content, and MMS actively assists in the evaluation and support of those projects. As a result, 40 percent of MMS-supported projects are joint awards with other programs. MMS interacts not only with programs in the SBE directorate, but also with other directorates, most notably the Directorate for Mathematical and Physical Sciences, which houses the Statistics and Probability program. MMS Director Eavey is an enthusiastic and skilled manager of such cross-program and cross-directorate joint efforts. The result is a highly diversified portfolio of MMS projects which vary widely across disciplines and substantive areas (e.g., cognitive psychology, survey methodology, and econometric modeling), and exhibit a diversity of methodological approaches (e.g., from formal mathematical development to experimental testing of proposed methods).

PART A. INTEGRITY AND EFFICIENCY OF THE PROGRAM'S PROCESSES AND MANAGEMENT

A.1 Questions about the quality and effectiveness of the program's use of merit review procedures.

Is the review mechanism appropriate? (panels, ad hoc reviews, site visits)

MMS is a broad, interdisciplinary program that emphasizes collaboration across disciplines, institutions, and agencies. This brings a number of unique issues to the review process. To address these issues, the program uses a number of different review mechanisms.

Of the 106 new awards supported by MMS in FY 2004-2006, 87 were "regular awards" for general research consistent with the goals of the program. Each proposal is subject to a two-stage review process, being evaluated first by external reviewers and subsequently by members of the review panel. At least six external reviewers with relevant expertise are contacted, resulting in an average of 3.6 written reviews. At least two panel members supply additional written reviews, and the panel as a whole discusses both the scientific merits and the broader impacts of the proposal, taking into consideration the views expressed by the external reviewers.

Based on the panel discussion, the panel recommends that a proposal be funded or not, and, for proposals that are recommended for funding, the panel also ranks their funding priority (high, medium, and low). Some proposals also receive the equivalent of a "revise and resubmit" recommendation, which is a "do not fund" recommendation made with some encouragement that a revision could result in a fundable proposal.

Following the primary panel recommendation, the MMS Program Director may also present the proposal to other Program Directors, panels, and/or agencies. Approximately 40% of the proposals reviewed by MMS were also reviewed by a secondary panel, which solicits at least some external reviews written by experts suggested by the MMS Program Director. The MMS panel discussion takes into account these additional reviews.

Other kinds of proposals (conference, CAREER, mid-career, dissertation and SGER awards) are not externally reviewed, but are reviewed by the panel. Other proposals, for which funding has been recommended, that are of interest to Federal statistical agencies are also subjected to review by panels of experts from those agencies.

In the opinion of the COV, the review mechanisms used by the MMS program are entirely appropriate given the goals of the program and the kinds of proposals received. The COV also noted that the program had significantly increased the number of external reviews obtained relative to the numbers discussed in the 2004 COV report: the modal number of external reviews was 4, which is a remarkable improvement. The COV commends the Program Director on her efforts to ameliorate the perennial and difficult problem of low numbers of willing reviewers.

Is the review process efficient and effective?

The COV finds that the review process for MMS is very efficient and effective, thanks to the expert management of the Program Director. This expertise has resulted in funding uniformly excellent proposals with broad impact that are consistent with the goals of the program.

Do the individual reviews (either mail or panel) provide sufficient information for the principal investigator(s) to understand the basis for the reviewer's recommendation?

In the vast majority of reviews, the comments are well-written, comprehensive and clear. They provide more than adequate basis for the principal investigator(s) to understand the reviewer's recommendation. There are a small number of reviews, however, consisting of only one or two paragraphs which seemed less informative.

Do the panel summaries provide sufficient information for the principal investigator(s) to understand the basis for the panel recommendation?

All panel summaries reviewed by the COV were clear and comprehensive. They gave an accurate impression of the opinions of the individual reviewers as well as the course of the panel discussion. Also clear were the reasons for the final panel recommendation and, in the case of proposals placed in the "revise and resubmit" category, the specific areas of the proposals needing change or clarification. The summaries are remarkably thorough, and the Program Director should be praised for her careful work in this area.

Is the documentation for recommendations complete, and does the program officer provide sufficient information and justification for her recommendations?

The jackets for the proposals reviewed by the COV were detailed and complete. The COV had no difficulty determining why particular recommendations were made for different proposals. The Program Director's review summaries were clear and accurately described the basis for each decision, including both scientific merits and broader impacts. These summaries, in particular, the COV found most helpful in interpreting the disposition of the proposals, and felt they reflected the excellent managerial skills of the Program Director.

Is the time to decision appropriate?

On average, the time to decision from the submission of a proposal is 5.93 months. 76.5% of proposals were processed within 6 months and fewer than 3% (7) had processing times over 9 months. Given the interdisciplinary nature of the MMS program and the fact that the panel meets only every six months, this relatively fast processing time is remarkable and again reflects the Program Director's excellent managerial skills.

The seven proposals with "dwell times" greater than 9 months were delayed for justifiable reasons, including co-review by other programs, requests for additional information, and failure on the part of the principal investigator(s) to submit annual and final reports on projects funded by NSF in a timely manner. In other cases, proposals were held over to the next funding cycle to take advantage of additional funds.

Additional comments on the quality and effectiveness of the program's use of merit review procedures.

The COV finds that the review process is efficient, fair, balanced and transparent. Given the interdisciplinary nature of the program and the fact that the Program Director must frequently coordinate reviews from two or more panels, the COV found the effectiveness of the review process very impressive. The COV has no concerns about this aspect of the program.

A.2 Questions concerning the implementation of the NSF Merit Review Criteria (intellectual merit and broader impacts) by reviewers and program officers.

Have the individual reviews (either mail or panel) addressed whether the proposal contributes to both merit review criteria?

A summary of data for FY 2004-2006 from the NSF data collection system shows that on average, 5.53 out of 7.67 reviews addressed both criteria for awarded proposals, and 5.56 out of 7.54 reviews addressed both criteria for declined proposals, which suggests a "compliance rate" of 70 to 75 percent. However, the data collection system only counts reviews as having addressed a criterion if the reviewer has entered the related comments into the field corresponding to that criterion. Thus, the COV suspects that the rates are underestimates, given that, for example, some reviewers enter all of their comments into a single field.

Have the panel summary reviews addressed whether the proposal contributes to both merit review criteria?

The MMS panel summaries examined by the COV addressed both review criteria appropriately.

Have the review analyses (Form 7s) addressed whether the proposal contributes to both merit review criteria?

The review analyses examined by the COV addressed both criteria appropriately.

Recommendations

The COV recommends that, although individual reviewers should be encouraged to consider both criteria in formulating their opinions, they should not be required to address the criteria in two separate fields. The two criteria are interrelated, and separating out the corresponding comments is difficult.

The COV recommends that the responsibility for addressing the two criteria separately during the review be given to the Program Director and the review panels.

A.3 Questions concerning the selection of reviewers.

Did the program make use of an adequate number of reviewers for a balanced review?

At least 6 external (mail) reviewers were asked to evaluate a proposal in MMS in FY 2004-2006 and the annual average number who responded with a review varied between 3.5 and 3.8. When combined with two panel reviewers, this implies that proposals typically received 5 or 6 MMS-generated reviews. This improves on the number of reviews received in earlier years and is adequate. Proposals jointly reviewed by MMS and other programs received further reviews.

Did the program make use of reviewers having appropriate expertise and/or qualifications?

The Program Director does a particularly good job in selecting reviewers given that the proposals are usually multidisciplinary. Consequently, the Program Director must draw reviewers from a wide variety of fields. Reviewers selected for the proposals generally are highly qualified scientists who seek to provide well-informed, mature, and balanced assessments of the research described in the proposals.

Did the program make appropriate use of reviewers to reflect balance among characteristics such as geography, type of institution, and underrepresented groups?

The reviewers are spread geographically across the U.S. and located at institutions whose staffs have the necessary expertise. Thus, the COV sees the current geographic distribution of the reviewers as appropriate. In addition, the nature of the scientific fields covered by MMS generates a wide variety of reviewer institutions. Reviewers come from academic and non-academic institutions, and from a wide variety of different groups and centers. In the absence of the necessary data on the pool of available persons with the necessary expertise, the COV cannot judge the appropriate representation of underrepresented groups.

Did the program recognize and resolve conflicts of interest when appropriate?

To the best of our knowledge, the MMS program is well attuned to the COI problem and, has handled it completely appropriately.

A.4 Questions concerning the resulting portfolio of awards under review.

Overall quality of the research and/or education projects supported by the program.

The quality of the research supported by MMS was perceived by the COV as being extraordinarily high. The principal investigators supported represent some of the most outstanding methodological researchers in the social and behavioral sciences. MMS supports important collaborations between social and quantitative scientists, as well as exciting research by young scientists.

Are awards appropriate in size and duration for the scope of the projects?

Many of the projects, by virtue of their computational and quantitative emphasis, have large scope. The duration of the awards, approximately 2.4 years, is typical and appropriate for such awards. In contrast, the average funding for these awards was $62,774 per year. This figure is very small, notwithstanding the fact that a large proportion of projects are partially funded through other programs. The total budget for MMS is also small, which naturally limits the size of awards.

A number of interdisciplinary and collaborative proposals supported through MMS have earned support in other programs, which means that MMS gets a lot of "bang for the buck." However, the small budget is clearly problematic. The Program Director should be proud of the high quality of the program portfolio, and she has dealt as well as

possible with the tension between maintaining a large, diverse portfolio with smaller awards versus a small, less diverse portfolio with bigger awards.

Does the program portfolio have an appropriate balance of innovative/high-risk projects?

Because MMS is a small program, the COV expected to see and found a small number of innovative/high-risk projects, which they felt was appropriate. Several young investigators received funding, including a CAREER award to J.S. Roberts (0536728) and an award to C. Reyna (0446869). Other projects that might be labeled high-risk have received small amounts of seed money, including G. Harrison's award (0616746). In all cases, the COV found that the Program Director had clearly documented and justified her decisions for making these awards and the COV concurred that they were appropriate.

Does the program portfolio have an appropriate balance of multidisciplinary projects?

The MMS program is multidisciplinary, and therefore a large number of awards fund multidisciplinary projects. Such projects range across statistics and the social sciences, including psychology, economics, sociology, and political science, among others.

The portfolio demonstrated the Program Director's excellent ability to coordinate funding efforts across different directorates within NSF and across Federal statistical agencies.

Does the program portfolio have an appropriate balance of funding for centers, groups and awards to individuals?

The MMS program, partially because of its small size, should not (and cannot) invest large sums in funding centers, although MMS does contribute small amounts of money to some center projects. A large proportion of the awards reviewed by the COV were to collaborative groups of individuals, which is expected and appropriate. There was a similar number of awards to individuals, such as those noted above for innovative/high-risk research.

Overall the balance of funding between centers, groups, and individuals was viewed by the COV to be entirely appropriate.

Does the program portfolio have an appropriate balance of awards to new investigators?

Summaries provided by the MMS program show that in FY 2004-2006, 42 out of 106 awards were made to proposals with involvement of new principal investigators (i.e., those not funded previously by the NSF). Thus, there was a healthy number of awards to new investigators, but the number was lower than that for veteran investigators.

Does the program portfolio have an appropriate balance of geographic distribution of Principal Investigators?

The geographic distribution of awards reflects the location of research centers and universities across the country and thus is appropriate.

Does the program portfolio have an appropriate balance of institutional types?

Most MMS awards are to groups and individuals at large research universities. However, there are also a number of awards to smaller universities, such as the one to X. Hu at the University of Memphis (0616657), and some awards to groups and individuals at research centers, such as the award to Y. Yamaguchi (0617202). The COV found the balance of institutional types appropriate.

Does the program portfolio have an appropriate balance of projects that integrate research and education?

In the FY 2004-2006 period, the MMS program supported one CAREER award (0547810) and many other awards that integrate research and teaching. Most final reports examined by the COV discussed how teaching and research efforts had been integrated as part of the project. The program also supported two mid-career awards. The COV viewed the balance of projects integrating research and education as appropriate.

Does the program portfolio have an appropriate balance across disciplines and subdisciplines of the activity and of emerging opportunities?

The COV found this aspect of the MMS program to be particularly strong. As discussed earlier, methodology development naturally lends itself to interdisciplinary research, since many methodological problems are motivated by challenges that arise in substantive science.

Program Director Eavey has demonstrated repeatedly her eagerness to nurture and support research on subjects that warrant greater research attention. A leading example is her stewardship since 1999, in conjunction with the Federal statistical agencies, of projects aiming to advance the methodology and practice of survey research. Another is her initiation of a network of researchers who met periodically during 2001-2006 to advance research on empirical analysis of social interactions.

The COV encourages the MMS program to continue to seek emerging opportunities. The following are three examples. (1) There is a pressing need for methodological research to enable more systematic interpretation of empirical findings emerging in "neuroeconomic" research on decision making and in neuroscience more generally. (2) It is highly important to develop better understanding of the problems and opportunities that arise in combining related data across data sets using with different sampling and questionnaire designs. (3) There is a longstanding need to better integrate the "design-based" and "model-based" approaches to survey research.

More generally, the COV encourages MMS to continue seeking out research that promotes synergy between methodological research and substantive applications. On the one hand, application-driven research often encounters open methodological questions that MMS-supported research may help to resolve. On the other hand, the usefulness and limitations of abstract methodological advances often become apparent only when serious applications are attempted.

Does the program portfolio have appropriate participation of underrepresented groups?

On average, in FY 2004-2006, 25% of the new awards given by MMS were for proposals involving women (26 of 106). During that same period, 4% of the new awards given by MMS were for proposals involving minorities (4 of 106). These numbers are consistent with previous COV reports and, in the opinion of the COV, reflect the small number of women and even smaller number of minority groups studying quantitative methods in the social sciences.

The COV looked over the jackets and could not find any evidence of discrimination or variation in standards of merit for different groups. It appears to us that the small number of awards to women and minorities is associated with the small numbers of women and minorities who submitted proposals in the areas of research that are the focus of MMS, and not a problem with the MMS program specifically nor NSF more generally.

Is the program relevant to national priorities, agency mission, relevant fields and other customer needs?

By supporting research in methodological areas and encouraging multidisciplinary work, the MMS program improves the nation's ability to obtain and analyze data in appropriate ways. Thus, it strengthens the underpinnings of scientific work, particularly in the social, behavioral, and economic sciences, but in other fields as well; and it provides state-of-the-art methods for the investigations needed to address national priorities. Two noteworthy examples of MMS efforts to address national priorities and address customer needs, outside of its traditional portfolio of grants, are the following: (1) the MMS collaboration with Federal statistical agencies to support research on survey and statistical methodology that is relevant to the agencies; and (2) the MMS support of the National Academy of Sciences' Committee on National Statistics, whose primary goal is to improve the statistical methods and information on which public policy decisions are based. Clearly, the activities of the MMS program support the progress of science and help to advance national health, prosperity and welfare, making the program very relevant to the NSF mission.

A.5 Management of the program under review.

Management of the program

The COV finds that the management of the MMS program is exemplary. Program Director Eavey has actively developed a high quality pool of reviewers and has fostered a very positive and professional relationship with reviewers and potential investigators. Dr. Eavey has made the most of a small budget by energetically pursuing opportunities for partnerships of her own program with other programs, especially within the SBE directorate, and with NSF-wide initiatives. She continually tests the waters of programs that are not actively partnering with MMS to broaden her opportunities for interdisciplinary initiatives that support NSF-wide and programmatic goals.

Responsiveness of the program to emerging research and education trends

Despite the small budget of the program, MMS has successfully evolved with emerging research and educational trends. As discussed earlier, Program Director Eavey has demonstrated repeatedly her eagerness to nurture and support research on subjects that warrant greater research attention.

Program planning and prioritization process (internal and external) that guided the development of the portfolio under review

The COV finds that Program Director Eavey, having directed the MMS program for close to fourteen years and having actively solicited collaborations with a broad range of programs and initiatives, is keenly aware of the priorities and resources available at various levels of NSF. In addition, Dr. Eavey has successfully stayed abreast of active and emerging research areas in related scientific fields. The COV was extremely impressed with Dr. Eavey's sophisticated balancing of scientific developments and funding opportunities to create a diverse funding portfolio that serves a broad range of scientific endeavors important to the entire SBE directorate. The high degree of leveraging of her awards across programs and other Federal agencies is a direct result of her ability to plan and prioritize.

Dr. Eavey has chosen to allocate the program's resources broadly rather than to support a small number of large awards. The COV strongly endorses this approach as a responsible and effective use of the limited MMS budget. Dr. Eavey's strategy is to support primary awards with relatively small amounts over multiple years and to contribute modest amounts to other programs' primary awards. MMS has a handful of moderate-sized awards, some of which are leveraged with other programmatic areas to generate a reasonable annual funding base.

PART B. RESULTS OF NSF INVESTMENTS

B.1 Outcome Goal for Discovery

MMS's focus on the development of new techniques for quantitative analysis and the application of those techniques to outstanding problems in the social sciences has met the

outcome goal for discovery. The new quantitative methods are of broad importance, equipping not only scientists within a particular area with new tools for discovery, but also scientists with similar problems across many disciplines. Better formal tools of analysis allow researchers a better way to study and solve problems.

For example, MMS has funded several projects dealing with methods for survey research, including the important work of R. Tourangeau and R.M. Groves, University of Michigan (0550385) on nonresponse rates and bias in survey data. Not only does this work provide us with a better understanding of how to analyze survey data, but also how to improve surveys and determine problems associated with low response rates. Vast amounts of social science data are collected using surveys, so these advances are extraordinarily important and contribute directly to the goal of "advancing the frontier of knowledge and ... establishing the nation as a global leader in fundamental and transformational science and engineering."

B.2 Outcome Goal for Learning

The MMS program invests heavily in multidisciplinary and collaborative research efforts. Such activities provide an important training ground for students and scientists in the scientific as well as interpersonal aspects of research. The resulting research also equips scientists by providing the methodological tools required for tackling complex problems in social and economic systems.

MMS directly funds education and professional development efforts in several ways. MMS has funded several workshops and conferences with the dual purpose of advancing the intellectual capital of individuals as well as scientific knowledge in core disciplines related to the social, behavioral, and economic sciences (e.g., Feinberg #0517956, Smith #0615917). In addition, MMS has sponsored two CAREER awards (Roberts #0536728; Pager #0547810), two Mid-Career awards (Staudt #0423077; Boland #0618544), and five dissertation awards as well. A third area is MMS's facilitation of the American Statistical Association's Federal Statistics Fellowship Program, which provides a mechanism for Federal statistical agencies to support government residencies for academic researchers.

B.3 Outcome Goal for Research Infrastructure

The MMS program has contributed to the nation's research infrastructure by supporting the development of methodology for research in the social and behavioral sciences as well as in other fields through its many grants to individual investigators and groups, as has been discussed throughout this report. However, the program has contributed to the infrastructure in a variety of other ways, such as the following: supporting major data collection, documentation, and dissemination activities; supporting the National Academy of Science's Committee on National Statistics; supporting the Federal statistical system via programs of grants and fellowships; and supporting a number of conferences and workshops.

As an example of supporting major data collection, documentation, and dissemination activities, the MMS has provided seed support for most of the Census/NSF Research Data Centers, which are located at or near major universities and provide researchers access to confidential Census Bureau data (SES-0004322, PI Shapiro; SES-0322902, PI Korenman, etc.) .

The Committee on National Statistics has a primary goal of improving the statistical methods and information on which public policy decisions are based. The Committee also benefits the social sciences by promoting the development and application of methodology for social science research, creating links between the Federal statistical system and the social science community, involving academic scientists and others in research to improve national statistics, conducting seminars and other vehicles for the exchange of information and ideas, and enhancing the status of social sciences in various arenas.

Research in areas of interest to the Federal statistical system is supported via the MMS collaboration with Federal statistical agencies to fund work on survey and statistical methodology. In addition, the MMS serves as a conduit for funds transferred from the Census Bureau, the Bureau of Labor Statistics, and the National Center for Education Statistics for support of the ASA Federal Statistics Fellowship Program. This program brings leading academic researchers to the participating agencies to collaborate with agency staff on research in areas of common interest.

Finally, the MMS program has supported several conferences and workshops, such as the Black Graduate Conference in Psychology (BCS-0405658, PI Sellers) and a Workshop on Privacy and Confidentiality (SES-0517956, PI Fienberg).

PART C. OTHER TOPICS

C.1 Please comment on any program areas in need of improvement or gaps (if any) within program areas.

The COV feels strongly that the MMS program attracts high quality proposals in a broad range of relevant scientific areas, with funds distributed appropriately across several important disciplines in the social, behavioral, and economic sciences. Further, the MMS program is responsive to new advances in these areas, as evidenced by the dynamic mix of research topics. The COV believes that the selection process guided by Program Director Eavey has led to an exceptional portfolio, in spite of challenges that exist in recruiting reviewers and her limited budget.

The COV suggests a few areas that might be specifically emphasized by MMS in upcoming years. (1) There is a pressing need for methodological research to enable more systematic interpretation of empirical findings emerging in “neuroeconomic” research on decision making and in neuroscience more generally. (2) It is highly important to develop better understand of the problems and opportunities that arise in combining

related data across data sets using with different sampling and questionnaire designs. (3) There is a longstanding need to better integrate the "design-based" and "model-based" approaches to survey research.

More generally, the COV encourages MMS to seek out research that promotes synergy between methodological research and substantive applications. On the one hand, application-driven research often encounters open methodological questions that MMS-supported research may help to resolve. On the other hand, the usefulness and limitations of abstract methodological advances often become apparent only when serious applications are attempted.

C.2 Please provide comments as appropriate on the program's performance in meeting program-specific goals and objectives that are not covered by the above questions.

The COV has no additional comments.

C.3 Please identify agency-wide issues that should be addressed by NSF to help improve the program's performance.

Methodological research is fundamental to the basic infrastructure for investigative science and the nation's information base for developing knowledge and social policy. As available data and information resources expand at an increasing rate, it is essential that NSF provide stronger financial support for the MMS program to ensure the development of critical quantitative and methodological building blocks for conducting scientific research. Given the superior leadership of this program, NSF stands to obtain a high return on its investment. Dr. Eavey has been extremely effective as a program manager, and is unusually creative and energetic in pursuing opportunities to leverage within NSF via cross-disciplinary partnerships and outside of NSF via extramural funding from other agencies.

The MMS program has links to specific foundation-wide initiatives such as the Mathematical Social and Behavioral Sciences (MSBS) program area. The COV understands that there currently are no plans to continue this competition. It is important that the research promoted by MSBS continue to be supported, whether through the existing funding mechanism or through new funding provided to MMS.

C.4 Please provide comments on any other issues the COV feels are relevant.

The COV has no additional comments.

C.5 NSF would appreciate your comments on how to improve the COV review process, format and report template.

The MMS COV would like to express its appreciation for the enormous amount of information provided to it by Program Director Eavey and her staff on the review

process, proposals, budgets, and a wide variety of statistics on the program's operational and review features.

The COV feels that it would have been useful to receive more advance information about the activities and goals of the COV during the site visit, along with guidance on how best to prepare itself prior to the meeting. Otherwise, the COV has no additional comments.

SIGNATURE BLOCK:

Charles F. Manski
Trisha Van Zandt
Nathaniel Schenker

_____

For the Methodology, Measurement and Statistics (MMS) COV
Charles F. Manski
Chair

Political Science

FY 2007 REPORT FOR
NSF COMMITTEES OF VISITORS (COVs)

Program: Political Science
Number of actions reviewed: Awards: 60 Declinations: 60 Other: 0
Total number of actions within Program during period under review: **Awards: 262 Declinations: 363 Other: 43**
Manner in which reviewed actions were selected: A complete list of all competitive proposals was generated for the COV period. The list was sorted by fiscal year and then by award status (awarded or declined). The dissertations were then sorted from the awarded and declined lists for a total of 4 sub-lists for each fiscal year. Each of the sub-lists were then sorted alphabetically and assigned a number from one (1) down the list. Using a random list of integers the sample was drawn from each of the twelve sub-lists by selecting the first ten (10) proposals on each of the integer lists.

Introduction:

The COV welcomes the opportunity to evaluate the NSF Political Science Program. In general, our review is quite positive. In our opinion, the program is extremely well run. It is funding high quality research, some of which is genuinely transformative. Future investment in the political science program is likely to produce important scientific advances in our understanding of democracy and democratization, ethnic conflict and war, and many other important areas of research.

Our report is based on a thorough reading of all the supporting materials that were provided to us prior to our arrival at the NSF. During our visit, we reviewed every jacket that was available to us. This included jackets for training programs, workshops, SGERs and other program activities. In addition, one of us read the jackets for more than twenty declines. This person also reviewed the jackets for the CAREER award competition. Finally, in the course of the two days, we had numerous discussions with the Program Directors and with various Division officials. It is on these bases that we wrote this report.

Our discussion is divided into three parts. The first part evaluates the major projects that the program supports. It is addresses the questions in part B of the report template (Results of NSF Investments). Future directions for research are presented in part two. The concluding section covers the topics in part A of the template (Integrity and Efficiency of the Program's Processes and Management).

Results of NSF Investments:

In this section we address the questions posed in part B of the template (Results of NSF's Investments), in the course of a discussion of various classes of Political Science program activities.

B.1 OUTCOME GOAL for Discovery: *"Foster research that will advance the frontier of knowledge, emphasizing areas of greatest opportunity and potential benefit and establishing the nation as a global leader in fundamental and transformational science and engineering."*

B.2 OUTCOME GOAL for Learning: *"Cultivate a world-class, broadly inclusive science and engineering workforce, and expand the scientific literacy of all citizens."*

B.3 OUTCOME GOAL for Research Infrastructure: "Build the nation's research capability through critical investments in advanced instrumentation, facilities, cyberinfrastructure and experimental tools."

American National Election Study (ANES, by Arthur Lupia and Jon Krosnick)

Acknowledgement. One of us is on the ANES Board of Overseers.

This is one of the most important projects in the American political science. Many advances in our understanding of American democracy have their origins in this research. That it funded the ANES, testifies to the political science program's ability to identify and sustain support for significant work in our discipline.

The decision to continue funding for the ANES is, in our judgment, sound. The PIs indeed are some of the most capable and accomplished political scientists of our time. They produced a well-designed proposal that addresses many of the important concerns that have been voiced about the ANES. As a group, the reviews are as thoughtful and thorough as any we found in more than seventy jackets. The program director's synthesis of these reviews is extremely well-done. We therefore are confident that the upcoming survey will yield important results (in part, because of the input the PIs received from the political science review panel and director).

The 2008 ANES survey will show how much more progress we can make in resolving important methodological issues like panel attrition and measurement error and in drawing sound causal inferences about electoral behavior. The program is to be commended for providing these PIs with the opportunities to meet these challenges and, in the process, giving them so many useful suggestions about to strengthen what already was a fine research design.

Empirical Implications of Theoretical Models (EITM, by John Aldrich)

Acknowledgement. Two of us have been instructors in this program, one is a co-PI on the rotating project, and the other was a member of the committee that recommended the creation of this program.

We applaud the program's support of the EITM project. In our judgment, it is a vital part of the program's educational mission. In general, the project has helped us better understand how to build rational choice theory and to accumulate, in a more sustained way, knowledge about important kinds of politics. The PIs and Program Directors have gone to great lengths to ensure that the EITM institutes cover valuable topics and also address diversity issues. The fact that students from more than forty institutions have attended the institutes shows that our discipline recognizes and appreciates the significance of the project.

Comments and concerns. It is curious that one group of reviews is convinced the impact of the EITM project already have been realized while another repeatedly calls for more rigorous assessment of the curriculum and instruction. We side with the latter group; more could be done to evaluate the institutes both in terms of student evaluations (which are quite unsystematic now) and, more important, to demonstrate that the breakthroughs being achieved by young scholars are the result of their having attended the institutes. In this regard, it is important to show that the breakthroughs probably would not have been achieved if the scholars had been unable to attend the EITM institutes.

Second, while efforts have been made to introduce some other kinds of theory and to explore interdisciplinary enterprises of some kinds, the institutes have not so much transformed as they have revitalized rationalize choice theory. In view of its importance in political science, this is a very significant accomplishment.

Time-sharing Experiments in the Social Sciences (TESS, by Diana Mutz and Arthur Lupia)

This is one of the most high quality, significant and successful recent projects in the social sciences. The PIs request for supplemental funding is detailed and well-justified. The program director's rationale for making this supplemental grant is sound. We agree that this project should be supported.

Qualitative Methods Institute

The COV agree that the development of scientifically rigorous qualitative methods is an important a part of the program's mission. Political scientists definitely need a better understanding of research design, interview technique, etc. This said, we are not convinced that the Qualitative Methods Institute at ASU is providing this kind of training. As the original reviews of the proposal noted, there seems to be no coherent curriculum that is scientific in nature. The topics covered by this group cover everything from the history of the discipline to "interpretivist" thought. Certainly, these topics are of interest to scholars. But how exactly they contribute to scientific progress is not, as described in the jackets, clear. We believe these funds would be better spent on 5-6 high quality rigorous dissertation fellowships.

Small Grants for Exploratory Research

The 13 proposals (11 projects) for Small Grants for Exploratory Research (SGERs) during 2004-2006 include commitments that clearly meet the criteria to support "preliminary work on untested and novel ideas; ventures into emerging and potentially transformative research ideas; and application of new expertise or new approaches to 'established' research topics or research for which there is severe urgency with regard to availability of, or access to data, facilities or specialized equipment, including quick-response research on natural or anthropogenic disasters and similar unanticipated events." Three proposals were tied to the aftermath of hurricane Katrina and so obviously tied to a natural disaster. Two of these proposals (by Leonie Huddy and by Lonna Rae Atkinson and Cherie Maestas) involved time-bound opinion surveys and one (by Rick Wilson) involved experiments to assess cooperative behavior among people displaced by the storm. Another proposal (by Peter Feaver) involved a series of opinion surveys that referred to battle casualties expected over a period of months in the war in Iraq. One proposal (by Michael Brintnall) was to support an American Political Science Association task force studying interdisciplinarity and was clearly justified as potentially transformative. Also potentially transformative was a proposal (by Mark Frankel) to support production of a report from a workshop on voting technology organized by the American Association for the Advancement of Science. The program continued to support interesting and useful inititatives in this important area by supporting a proposal (by David Magleby) to conduct exit polls to measure voters' experience in Ohio and Utah. The one SGER proposal that raised some concern for us was a proposal (by Carol Swain) to conduct focus groups in Nashville, TN, bearing on immigration. The research set out by the proposal was to occur during a period when interest and mobilization about immigration was high, and the PI proposed to draw in a diverse range of participants (blacks, whites and Hispanics). But we were concerned that an empirical basis of focus groups all conducted in one city is worryingly thin. This small concern notwithstanding, we find the political science program's use of SGER awards to be highly effective.

Future Directions:

Among the important new opportunities for research in political science are the following.

1. Global climate change and government capacity. Currenty, little political science research directly addresses the increasingly important challenges posed by disasters and changes in the environment. Yet the general question of how to design effective government institutions is subject of much ongoing high quality research. We would recommend efforts to connect basic research agendas on in the area of institutional design to the specific problems posed by hurricanes, tsunamis, and

similar events. Equally important, our knowledge of whether and when governments can solve the collective action problems (both within and among countries) can be effectively applied to problems associated with global warming.

2.Health crises. The same can be said about research on infectious disease. Infectious disease is a burgeoning area of research in the life sciences, and we are beginning to see high quality projects that address the questions of government capacity to manage disease and (or) to participate with other governments to this end. Again, this is an area in which general models of institutional design can be fruitfully applied to problems of significant social magnitude, in a way that both sheds light on the particular problem *and* advances basic theoretical knowledge.

3. Human Biology and Politics. Our understanding of how brain structure affects the human behavior and of the genetic components of individual behavior, choices and preferences has grown enormously in recent years. Advances in neuroscience and genetics offer alternatives to the standard rational choice model of behavior, as well as suggesting empirical regularities that could be fruitfully incorporated into standard theories.

4. Institutions. Still more research on electoral systems—including voting technologies—should be supported. The two SGER grants on Making The Vote Count and on the quality of the voting experience (Magleby) are indicative of the kind of projects that ought to be encouraged.

Some of the most exciting research on institutions, in our opinion, focuses on subnational political processes and data gathered at a subnational level, e.g., local government spending patterns. The rich variety of contexts and relatively large amount of data that are increasingly available at this level of analysis makes it an ideal setting in which to evaluate alternative forms of democracy—the extent to which some forms of local government represent and respond to competing interests better than others.

Tremendous advances have been made in recent decades, thanks to NSF support, in categorizing and understanding the workings of legislative and other forms of democratic institutions in North America and Europe. We only beginning to understand the nature and workings of these institutions in other parts of the world, however. Our understandings of democratic institutions in Africa and Asia are particularly underdeveloped. Advances in our theories of democratization, the democratic peace, democracy and development, and other important subjects require the same kind of knowledge of emerging democracies.

5. Methodological challenges. We must find ways to study whole political systems; reductionist approaches can answer narrow questions. But topics like those mentioned above require models of large scale that allow for nonlinearities and dynamics. Research should be encouraged in areas that link social network

theory, complex (agent-based) systems, and evolutionary game theory to data, in particular in ways that promote falsification. This is the kind of research that some of us think is most like to be genuinely transformative.

Other methodological areas that show clear signs of snowballing progress are experimental methods (including field experiments) and matching studies. The latter offer an exciting alterative to the inferential limitations posed by regression analysis.

While the funded proposals occasionally promise predictions and forecasts, the fact is that we lag far behind the natural sciences and economics in our ability to anticipate terrorist attacks, ethnic violence, war, and other kinds of destructive behavior as well as collective actions of various kinds. Research that promises to produce sound forecasts of such events ought to be encouraged and supported, and efforts should be made to encourage researchers to think about the potential forecasting applications of their work

Quality Assurance:

In this section we address the questions posed in part A of the template (Integrity and Efficiency of the Program's Processes and Management), grouping them together as seems appropriate.

A1. Questions about the quality and effectiveness of the program's use of merit review procedures.

1. **Is the review mechanism appropriate? YES**
2. **Is the review process efficient and effective? YES**
3. **Do the individual reviews (either mail or panel) provide sufficient information for the principal investigator(s) to understand the basis for the reviewer's recommendation? YES**

We are favorably impressed by the review process, and the quality of reviews. In our sample of proposals, we did find cases in which individual reviews were too superficial to be helpful to the principal investigator, but such cases were not typical. The typical review shows a high level of engagement with the proposal. In addition to explaining the recommendation, a large number of reviews offer constructive criticism that would help the PI's research agenda. This latter point holds true for proposals not funded as well those that are.

We note that reviews for doctoral dissertation fellowship proposals are often shorter and less detailed than for regular research proposals. Perhaps this is to be expected, given the the preliminary nature of dissertation projects. But the graduate students who write these proposals would benefit from more detailed feedback.

4. **Do the panel summaries provide sufficient information for the principal investigator(s) to understand the basis for the panel recommendation? YES**

5. Is the documentation for recommendations complete, and does the program officer provide sufficient information and justification for her/his recommendation?
YES

The panel summaries and recommendations do an excellent job of succinctly explaining the reasoning behind recommendations, and, when appropriate, conveying how differing reveiwers were reconciled.

6. Is the time to decision appropriate? YES

The "dwell time" is around 4 months on average, with 99% of proposals processed in six months or less. This is a very fast turn-around, hard to imagine improvements being made.

A2. Questions concerning the implementation of the NSF Merit Review Criteria (intellectual merit and broader impacts) by reviewers and program officers.

"Intellectual merit" is addressed in virtually all reviews, and in most cases, addressed with notable care and thoroughness. "Broader impact" is more problematic and more complicated. It is interpreted in a variety of ways, not all of which seem consistent with what we perceive to be the intention of this criterion.

1. Have the individual reviews (either mail or panel) addressed both merit review criteria? MOSTLY, BUT NOT ALWAYS

In going through part of our sample of jackets, we paid careful attention to when and how the latter criterion is addressed. In particular, we kept track of two separate things (1) whether reviewers followed the Fastlane instructions and entered some text under each of the criteria (call this "formal compliance") and (2) whether the review actually addressed these criteria anywhere, regardless of where (call this "substantive compliance.") . We found occasional cases of substantive compliance without formal compliance on "broader impact" (that is, cases where "broader impact" was discussed in the review, but the field labelled "broader impact" was left blank.) But the reverse was much more common. In roughly half of the reviews that were formally compliant, the language under "broader impact" was a restatement of intellectual merits – noting the intellectual merits were broad, that the project would deepen our understanding of the phenomenon to be studied, that scholars in other subfields would be interested in the results of the study, that data would be used by others.

2. Have the panel summaries addressed both merit review criteria? YES
3. Have the review analyses (Form 7s) addressed both merit review criteria? YES

The panel summaries and review analyses address both merit review criteria. Using the distinction we made above, they are invariably in formal compliance, and usually

substantively compliant as well. We spent some time discussing one case, however, in which the panel summary (as well as the reviews) identified "broader impacts" of a project as understanding the prospects for democracy in Russia. We were not in agreement among ourselves about whether this is what is intended by "broader impact."

4. Additional comments with respect to implementation of NSF's merit review criteria

There are two ways to view the ambiguity of the "broader impact"criterion. One view would be that it is really not a big problem. The cases in which the broader impact criterion is not substantively addressed are generally cases in which broader impacts are not an important part of the proposal's merits. No harm is done if reviewers make superficial or idiosyncratic comments in the broader impacts field.

The other view, however, is that if the program asks reviewers to evaluate broader impact, reviewers should be given enough direction to evaluate it in the intended way. Better instructions to reviewers, more consistency between the instructions in the letters soliciting reviews and the instructions reviewers encounter in Fastlane might help. We were provided with a copy of the letter sent to potential reviewers. The second paragraph begins as follows

> *The two Merit Review Criteria used are: (1) What is the intellectual merit of the proposed acivity? And (2) What are the broader impacts of the proposed activity? Please provide detailed comments on the quality of this proposal with respect to each of the two NSF Merit Review Criteria, noting specifically that proposal's strengths and weaknesses.*

A more informative version of these same instructions might be

> *The two Merit Review Criteria used are: (1) What is the intellectual merit of the proposed acivity? And (2) What are the broader impacts of the proposed activity? We ask that you address each of these criteria in the separate fields that you will find in our online proposal system FastLane.*
>
> *Examples of considerations relevant to evaluating intellectual merit include:*
>
> • *How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields?*
>
> • *How well-qualified is the proposer (individual or team) to conduct the project? (If appropriate, comment on the quality of prior work.)*
>
> • *To what extent does the proposed activity suggest and explore creative and original concepts?*
>
> • *How well-conceived and organized is the proposed activity? Is there*

sufficient access to the necessary resources?

Examples of considerations relevant to evaluating broader impacts include:

- *How well does the activity advance discovery and understanding while promoting teaching, training, and learning?*

- *How well does the proposed activity broaden the participation of underrepresented groups (such as gender, ethnicity, disability, geography)?*

- *To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships?*

- *Will the results be disseminated broadly to enhance scientific and technological understanding?*

- *What may be the benefits of the proposed activity to society?*

The bullet points in this suggested language come from FastLane's online help (which most reviewers don't ever access because FastLane is relatively easy to use.) We think that most reviewers write their reviews with a word processor before logging on to FastLane, and even experienced reviewers maybe forget that the two criteria are supposed to be discussed separately.

A.3 Questions concerning the selection of reviewers.

1. Did the program make use of an adequate number of reviewers? YES

The program is appropriately sensitive to the relative benefits and costs of a large versus a small set of reviewers. Dissertation proposals are reviewed only by members of the panel dedicated to the dissertation proposals. This is a sensible procedure – more reviews of dissertation proposals would be unlikely to affect the outcome and would be consume time and effort that could be better deployed elsewhere. We thus see no problem with the number of reviews for dissertation fellowship proposals, but, as noted above, we think that the panelists who review the dissertation proposals should be asked to write more detailed reviews.

2. Did the program make use of reviewers having appropriate expertise and/or qualifications? YES

3. Did the program make appropriate use of reviewers to reflect balance among characteristics such as geography, type of institution, and underrepresented groups? YES

Roughly 50% of reviewers come from the top 100 research institutions, 40% from 5 states that are both large in population and (with one exception) among the top 5 states in terms of submissions (the exception is Massachusetts, which is obviously dense with

potential reviewers.) Obviously, the program is seeking regional diversity in its set of reviewers. Indeed, one might be concerned that diversity among institutions was taking precedence over quality of advice, our impression was quite the opposite. Rather, we were impressed at the high quality and careful reviews submitted from reviewers at lesser known institutions. The program directors do an excellent job of finding and drawing on the disciplines various sources of expertise.

Precise data on underrepresented groups is not available because a very large fraction (78%) of reviewers do not report gender and minority status. Our impression from reading the names of reviewers, nonetheless is that women are well-represented among the reviewers.

4. Did the program recognize and resolve conflicts of interest when appropriate? YES

NSF COI rules are notoriously strict. While we recognize the value of erring on the side of caution in this matter, we note that grants for infrastructure projects that involve large numbers of scholars (many in minor roles) made be disadvantaged by having a large number of qualified reviewers lost because of COI rules.

A.4 Questions concerning the resulting portfolio of awards under review.

1. Overall quality of the research and/or education projects supported by the program. APPROPRIATE

2. Are awards appropriate in size and duration for the scope of the projects? YES

3. Does the program portfolio have an appropriate balance of innovative/high-risk projects? APPROPRIATE

4. Does the program portfolio have an appropriate balance of multidisciplinary projects? APPROPRIATE

5. Does the program portfolio have an appropriate balance of funding for centers, groups and awards to individuals? APPROPRIATE

We believe that the portfolio mix is appropriate. Political Science supports a relatively large number of dissertation fellowships. These provide critical support for important, new avenues of research.

6. Does the program portfolio have an appropriate balance of awards to new investigators? APPROPRIATE

In the period we reviewed, more than two-thirds of the proposals (372 out of 540) had new involvement. (Note that this number does not include dissertation proposals, a category which of course has 100% new involvement.) The high fraction of proposals with new involvement demonstrates that the NSF program is viewed as largely open to new investigators throughout the discipline. Funding rates are somewhat lower for proposals with new involvement (17% versus 29%), but the magnitude of the differential does not suggest that it is due to anything other than quality differentials.

Related to the topic of new investigators is the low frequency of CAREER awards – only one during our review period – and the sentiment expressed in the "Program Information" section that Political Science should try to award more of them. Our reading of the CAREER proposals in our sample confirms the Program Directors' judgment that the proposals received in this category

are not of particularly high quality – not at the level of quality that would merit funding for a normal research proposal. The Program Directors conjecture that the low success rate in Political Science has become self-perpetuating (low success rate leads to low salience, low expectations, and lack of models for success) and this may indeed be the case.

But it may also be the case that the parameters of the CAREER awards, which seem to have been designed with bench science in mind, may be inappropriate for Political Science. We note, for example, that junior scholars in some fields of science seem to face the problem of remaining in the shadows of the more senior scientist in whose labs they work as post-doc and junior collaborators. In areas where large-scale collaboration is a clear norm, the CAREER award program offers a good way to allow junior scientists to come out of the shadows. But large-scale collaborative research is less common in political science. The specific problem of being in the shadow of senior scientists is rarely important for political scientists. Moreover, political science graduate students are rarely involved in the writing of grants of a scale anywhere close to that of a CAREER award. The typical doctoral dissertation grant award, for example, is around $10,000 (backed out from table on page 7 of "Program Statistics"), compared the $400,000 minimum for CAREER awards.

There are at least two ways one might react to the relatively low quality of CAREER awards. One would be to try to encourage panelists to adjust the way that they read CAREER proposals, e.g., to take account of the fact that proposers have only 15 pages in which develop a proposal that incorporates both research and teaching over a four-year period, or to base the award more on the potential of the proposer than on the quality of the proposal itself. We would regard such an adjustment as a loss. The reviews in our sample documented a healthy aversion to "trust me" proposals, and we would encourage the Program Directors to continue to nurture this culture of skepticism. Moreover, we tried to imagine a world in which a good fraction of the top junior scholars were writing high quality CAREER awards, say to the extent that three were awarded each year. The opportunity costs in terms of regular research projects would be dire indeed.

The other possible reaction is to think about how the basic goals that motivate the CAREER program might be best served in Political Science, and perhaps in other areas in SES. Our understanding is that the main goal is to support high quality junior scholars in the difficult years leading up to a tenure decision. Our feeling is that training and infrastructure programs like the Summer Methodology conference and EITM, which bolster the methodological toolkits of junior scholars, are better ways to best leverage the talents of young political scientists.

7. Does the program portfolio have an appropriate balance of geographical distribution of Principal Investigators? APPROPRIATE
8. Does the program portfolio have an appropriate balance of institutional types? APPROPRIATE
9. Does the program portfolio have an appropriate balance of projects that integrate research and education? APPROPRIATE
10. Does the program portfolio have an appropriate balance across disciplines and subdisciplines of the activity and of emerging opportunities? APPROPRIATE

The primary force shaping the program portfolio is the quality of the proposals. No subfields, regions, types of projects seem to be unduly advantaged, except in cases in which the program is responding to a particular program or initiative (e.g. the EPSCOR program that makes it easier to fund proposals from states that rarely receive awards.)

11. Does the program portfolio have appropriate participation of underrepresented groups? APPROPRIATE

The Political Science program is clearly concerned with promoting diversity within the discipline in a variety of ways (diversity in the mix of reviewers and panelists, the Bunche Institute, a workshop on Women's Advancement in Political Science). We applaud the extent to which the program is able to promote diversity in ways that do not sacrifice academic excellence. By far the most important way that NSF can promote greater representation of women and minorities in the discipline is by funding of high quality research proposals submitted by members of these underrepresented groups. In the period we reviewed, proposals with women involvement were equally likely to be funded as those without (21% success rate in each category). Proposals with minority participation were somewhat less likely to be funded than those without (16% success rate versus 22%). The 15 proposals involving minorities and the 59 involving women will have significant positive impacts on the careers of these investigators (as well serving the primary goal of furthering our basic understanding of political processes.)

NSF's most effective and appropriate strategy for promoting participation of underrepresented groups is by funding research proposals. Of course, we would like to see the fraction of proposals involving women and minorities increase, and we believe that some NSF activity is this area has paid off. Training programs like the Bunche Institute (which promotes recruitment of minorities into Ph.D. programs) and EITM (which deepens the quality of graduate training) are reasonable long-term strategies for increasing diversity. We were less persuaded that the Workshop on Women's Advancement in Political Science produced much of value, though we note that it was not a costly undertaking.

A.5 Management of the program under review.

1. Management of the program. EXCELLENT

2. Responsiveness of the program to emerging research and education opportunities. EXCELLENT

3. Program planning and prioritization process (internal and external) that guided the development of the portfolio. EXCELLENT

The Political Science program has been well-managed. The Program Directors are well-informed about research developments in the discipline.

SIGNATURE BLOCK:

Walter Mebane
John Freeman
Kathleen Bawn

_____

For the Political Science COV
Walter Mebane
Chair

Science and Society

FY 2007 REPORT FOR
NSF COMMITTEES OF VISITORS (COVs)

Program: Science and Society (EVS, HPS, SSS, SPS)
Number of actions reviewed: Awards: 25 Declinations: 15 Other: 0
Total number of actions within Program during period under review: **Awards: 264 Declinations: 633 Other: 135**
Manner in which reviewed actions were selected: A randomly chosen selection of proposal jackets was made available by program officers, supplemented by COV requests for specific proposals.

PART A. INTEGRITY AND EFFICIENCY OF THE PROGRAM'S PROCESSES AND MANAGEMENT

Briefly discuss and provide comments for *each* relevant aspect of the program's review process and management. Comments should be based on a review of proposal actions (awards, declinations, and withdrawals) that were *completed within the past three fiscal years*. Provide comments for *each* program being reviewed and for those questions that are relevant to the program under review. Quantitative information may be required for some questions. Constructive comments noting areas in need of improvement are encouraged.

A.1 Questions about the quality and effectiveness of the program's use of merit review procedures. Provide comments in the space below the question**.** Discuss areas of concern in the space provided.

QUALITY AND EFFECTIVENESS OF MERIT REVIEW PROCEDURES	YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE[18]
1. Is the review mechanism appropriate? (panels, ad hoc reviews, site visits) Comments: The review mechanism consists of panels and ad hoc reviews and is appropriate for this cluster of disciplines.	Yes

[18] If "Not Applicable" please explain why in the "Comments" section.

2. Is the review process efficient and effective? Comments: The process seems to work extremely well. The review process is completed in less than six months, which is a reasonable period of time. Reviews on the whole were detailed and gave specific comments, although occasionally there were reviews that were perfunctory. We had the impression that PO's worked to ensure that there were adequate numbers of thorough reviews, to make up for any shorter evaluations. Panels are well balanced to represent the main disciplines needed for proper review. All in all the process is very thorough, and the final review analyses were excellent. In cases where reviewers differed sharply in their response, panels and program officers gave close attention to the nature of the criticisms and to overall quality and feasibility of the projects.	Yes
3. Do the individual reviews (either mail or panel) provide sufficient information for the principal investigator(s) to understand the basis for the reviewer's recommendation? Comments: Yes, most are thorough and thoughtful and provide useful guidance to PI's. Occasionally there will be one that isn't up to the high standard of the rest. The reviews of dissertation improvement proposals were in some cases particularly conscientious in making suggestions to younger scholars, even though the proposals involved very small funding levels.	Yes
4. Do the panel summaries provide sufficient information for the principal investigator(s) to understand the basis for the panel recommendation? Comments: Appropriately enough, the panel summaries do not reiterate the ad hoc reviews, but tend to summarize the panel's conclusions briefly and refer the PI to the details in the reviews. Panel comments indicate what the panel found salient. PI's also receive the reviews from the panelists, as well as the context statement. PI's are also able to contact the Program Officers to discuss proposals, especially when they expect to revise and resubmit.	Yes
5. Is the documentation for recommendations complete, and does the program officer provide sufficient information and justification for her/his recommendation?	

Comments: Yes, comments are complete and recommendations are well justified. We did not notice any instances in which they were incompletely documented or inadequately justified.	Yes
6. Is the time to decision appropriate? Comments: The dwell time went up slightly in 2005 and 2006, compared to 2004, and averages 5.11 months for awards and 5.06 months for declined proposals. The time is appropriate given the stages of the review process. Program officers provide informal information about status of proposals to the majority of PI's well before the decision time. Directors notify PI's within days after the panel decision If proposals are no longer being considered. Time to decision may take longer when additional materials are needed, or when proposals are being co-reviewed by programs on different schedules from S & S. There may also be strategic reasons for delaying processing of proposals, for example if additional funds will become available near the close of the fiscal year.	Yes
7. Additional comments on the quality and effectiveness of the program's use of merit review procedures: Program officers work diligently to identify younger scholars who would be appropriate reviewers. Officers give presentations at professional meetings, confer with executive committees of professional societies, and track those who are awarded dissertation and postdoctoral grants.	

A.2 Questions concerning the implementation of the NSF Merit Review Criteria (intellectual merit and broader impacts) by reviewers and program officers. Provide comments in the space below the question. Discuss issues or concerns in the space provided.

IMPLEMENTATION OF NSF MERIT REVIEW CRITERIA	YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE[19]
1. Have the individual reviews (either mail or panel) addressed both merit review criteria? Comments: The majority of individual and panel reviews do address both merit criteria. Some reviewers did not fill out the separate boxes but did address the criteria in summary comments.	Yes
2. Have the panel summaries addressed both merit review criteria? Comments: Although the panel summaries were often very brief, they did address both merit review criteria consistently.	Yes
3. Have the *review analyses* (Form 7s) addressed both merit review criteria? Comments: Yes, the analyses were excellent and always addressed both criteria.	Yes

[19] In "Not Applicable" please explain why in the "Comments" section.

4. Additional comments with respect to implementation of NSF's merit review criteria:

Both of the merit criteria, intellectual merit and broader impact, were carefully considered throughout the process. Reviewers were often thoughtful not just about how neighboring disciplines would benefit from a project, but were also attentive to broader social and educational impacts, in all their multiple dimensions ranging from the academic community to the larger society. Occasionally reviewers did not seem to know what "broader impact" referred to, or how to address that criterion, and would benefit from some instruction on what is intended here.

A.3 Questions concerning the selection of reviewers. Provide comments in the space below the question. Discuss areas of concern in the space provided.

SELECTION OF REVIEWERS	**YES , NO, DATA NOT AVAILABLE, or NOT APPLICABLE** [20]
1. Did the program make use of an adequate number of reviewers? Comments: NSF depends on external reviews and the academic community recognizes its responsibility to provide expert reviews. Given the busy schedules of academics they are not always able to provide reviews, but program officers work hard to ensure appropriate and timely reviews. For almost all cases reviewed by the COV there were an adequate number of reviews. In general mail reviews are requested from 3 to 6 scholars, and the average number of reviews per proposal is 5 or 6, of which 2 are from panelists. This number exceeds NSF requirements. The panel may be asked to provide 3 reviews as a last resort if it proves impossible to generate a sufficient number of external reviews.	Yes
2. Did the program make use of reviewers having appropriate expertise and/or qualifications? Comments: Overall the reviewers' expertise was closely matched to the substance of the proposal. In some cases efforts were made to go outside the academic environment to find expertise, which is appropriate. To the very limited extent (one or possibly two cases in the many we reviewed) that the balance of reviewers could be improved, the problem seemed to stem from non-response of qualified reviewers who had been approached early in the process.	Yes

[20] If "Not Applicable" please explain why in the "Comments" section.

3. Did the program make appropriate use of reviewers to reflect balance among characteristics such as geography, type of institution, and underrepresented groups?[21] Comments: Geographic balance and balance for type of institution seem appropriate. Data on gender and ethnicity of reviewers are not sufficient to address this question, as the majority of reviewers do not provide the demographic information on themselves. Of those who do, on average 12.5 percent are men, 7.8 percent are women, and 1.6 percent are underrepresented minorities. Without demographic information on the entire population of reviewers, it is not possible to comment on these statistics.	Yes
4. Did the program recognize and resolve conflicts of interest when appropriate? Comments: Conflicts of interest seemed to be consistently avoided at the outset or appropriately handled when they are identified later in the process.	Yes
5. Additional comments on reviewer selection: The COV appreciates the fact that program officers are constantly trying to expand the community of reviewers. They work diligently to identify younger scholars who would be appropriate reviewers, through interaction with professional societies, direct encouragement of younger scholars, and by tracking those who have been awarded dissertation and postdoctoral grants.	

[21] Please note that less than 35 percent of reviewers report their demographics last fiscal year, so the data may be limited.

A.4 Questions concerning the resulting portfolio of awards under review. Provide comments in the space below the question. Discuss areas of concern in the space provided.

RESULTING PORTFOLIO OF AWARDS	APPROPRIATE, NOT APPROPRIATE[22], OR DATA NOT AVAILABLE
1. Overall quality of the research and/or education projects supported by the program. Comments: The proposals supported have received excellent ratings from the reviewers. The dissertation improvement program is excellent and we strongly support its continuation and even expansion. From 2004 through 2006 the program received 1016 proposals, including 806 regular proposals and 210 dissertation proposals. The regular proposals included 34 Nano proposals and 85 EESE proposals that were not reviewed but this COV. The overall funding rate is 29 percent, suggesting that the process is very competitive and that only high quality proposals get funded. If dissertations are not included, the funding rate is 27.9 percent.	Appropriate
2. Are awards appropriate in size and duration for the scope of the projects? Comments: The project budgets are appropriate and amounts awarded are appropriate. Projects that require more funding or more time probably are not being proposed because PI's are aware of budgetary constraints. As the program develops we believe it will be important to continue to fund individual scholars and maintain the dissertation awards, but it will also be important to be able to fund more ambitious projects, such as research involving multiple sites or more collaborators, that might contribute to theoretical development.	Appropriate
3. Does the program portfolio have an appropriate balance of: • Innovative/high-risk projects?[23]	

[22] If "Not Appropriate" please explain why in the "Comments" section.
[23] For examples and concepts of high risk and innovation, please see Appendix III, p. 66 of the Report of the Advisory Committee for GPRA Performance Assessment, available at <www.nsf.gov/about/performance/acgpa/reports.jsp>.

Comments: There is an appropriate balance of innovative/high risk projects and those employing accepted methodologies.	Appropriate
4. Does the program portfolio have an appropriate balance of: • Multidisciplinary projects? Comments: By its nature this is an area that draws disciplines together and the portfolio reflects this.	Appropriate
5. Does the program portfolio have an appropriate balance of: • Funding for centers, groups and awards to individuals? Comments: The program funds a variety of different size projects, including multi-investigator research proposals, individual scholar awards, and doctoral dissertation improvement grants. In addition the program co-funded CAREER proposals (supporting promising junior scholars for 5 years), Workshops, Small Grants for Training and Research (SGTR), and Small Grants for Exploratory Research (SGER). The Program does some co-funding both within the Directorate and with other directorates such as Engineering, and Computer and Information Sciences and Engineering (CISE). Included within the portfolio of the program are the Ethics "Research Experience for Undergraduate (REU)" awards, which supplement awards made in other directorates. In 2004 the program assumed new responsibilities as a result of NSF's involvement in the National Nanoscale Initiative and is currently involved with solicitations for various education and research projects on nanoscale science and its social implications (which were not covered by this COV).	Appropriate
, 6. Does the program portfolio have an appropriate balance of: • Awards to new investigators? Comments: A large number of new PI's apply and their funding rate is close to but not quite at the level of PI's who have received prior funding. This difference in funding level is to be expected.	Appropriate
7. Does the program portfolio have an appropriate balance of: • Geographical distribution of Principal Investigators?	

Comments: Good geographical distribution.	Appropriate
8. Does the program portfolio have an appropriate balance of: • Institutional types? Comments: Distribution is appropriate, with majority of proposals coming from research-intensive schools, which is to be expected. However there is good distribution across other institutional types, in particular other PhD granting institutions.	Appropriate
9. Does the program portfolio have an appropriate balance of: • Projects that integrate research and education? Comments: Some grants are focused on training and education. In many projects training of students is a component of the project, whereas in others the creation of educational materials is a product. The program also works informally with the Engineering and Education and Human Resources Directorate to fund ethics education grants. In 2005 and 2006 the program managed the proposal review and award process for Ethics Education in Science and Engineering (EESE). The program also includes the Ethics Research Experience for Undergraduates supplements to awards in other directorates. Many proposals combine research and educational goals.	Appropriate
10. Does the program portfolio have an appropriate balance: • Across disciplines and subdisciplines of the activity and of emerging opportunities? Comments: The various disciplines and sub-disciplines that are engaged in research in this area are well represented in this portfolio. The program also does a good job of funding work in emerging disciplines or projects that are interdisciplinary.	Appropriate
11. Does the program portfolio have appropriate participation of underrepresented groups? Comments: There is low representation of racial and ethnic minorities within the field as a whole, but the program does receive proposals from underrepresented groups.	

Although there is significant variability in number of minority proposals submitted, on average they represent 7 percent of submissions. The average funding rate for these proposals was slightly higher than that of proposals overall (30 percent compared to 29 percent).	Appropriate
12. Is the program relevant to national priorities, agency mission, relevant fields and other customer needs? Include citations of relevant external reports. Comment: The program is directly and clearly relevant to national priorities, agency mission and relevant fields (see also our answer to question 13). Research in the S & S disciplines bears directly on our understanding the evolution and development of science, engineering, and technology and the social impact and implications of science, engineering, and technology. The S & S program appropriately became involved in NSF's National Nanoscale Initiative, and solicitations included proposals to investigate the social and ethical dimensions and implications of nanotechnology. From 2004 to 2006 there were 34 Nano proposals connected to this program (not reviewed by this COV). In addition, in the summer of 2006 the program co funded a workshop on the *Social Organization of Science and Science Policy* at NSF, with the goal of providing guidance to the NSF as it launched the new focus on the Science of Science Policy. The workshop responded to the call from Dr. John Marburger for a "social science of science policy" and operated in tandem with two other workshops in the SBES Directorate that provided advice on shaping a new funding program on the science of science policy. Prior to this meeting, a workshop held in 2003 explored the theme *Research Policy as an Agent of Change*, and its report was published by NSF in 2006. These examples show that the program is directly concerned about addressing agency mission and national priorities that are relevant to the agency's mission.	Yes
13. Additional comments on the quality of the projects or the balance of the portfolio: The program is the locus for a form of self-reflection on the part of the entire research community. Scholars in the S & S areas offer resources for examining the effects of different forms of organization of research, of the effects of methodological preferences and choices, of the interaction between social values and priorities and research agendas and research practices, for studying (and evaluating) the character of hypothesis and model assessment and the structure of knowledge in the various fields of science, for studying the conceptual foundations of fields like physics, biology, and chemistry, for studying the forms of scientific change, both incremental and	

revolutionary/transformative, for studying modes of applying scientific research to technical and practical problems, to understanding and making recommendations for the improvement of public understanding of science. The program has been flexible enough to respond to top-down initiatives like the Nanoscience initiative while continuing to support ongoing research deemed important by the S & S in a bottom up fashion. Continued support of the field in this way is necessary if we are to respond to future developments in sciences and technology. Furthermore, expansion of the base of S & S research will be critical if the Foundation is successful in expanding the amount of research it is able to support.

A.5 Management of the program under review. Please comment on:

1. Management of the program.
Comments:

The COV was very impressed with the efficiency of the program. We believe that the program requires three full-time program officers; presently the program is being run by two rotators who are doing an excellent job, but are clearly overworked. Two positions are currently being advertised, one to replace a program officer who left in January, and the other to replace a rotating officer who will leave in June 2007. In order to maintain institutional memory, which is crucial to running an efficient operation, we recommend that of the three program officers, one be a permanent position.

2. Responsiveness of the program to emerging research and education opportunities.
Comments:

The program officers are very aware of opportunities that develop within NSF and are actively engaged in project development.

See also the answer to question 3 below.

3. Program planning and prioritization process (internal and external) that guided the development of the portfolio.
Comments:

During the review period the program was reorganized and two separate programs were combined under the umbrella of Science and Society. For the last three years it had two full-time temporary directors and one half-time permanent associate director. The permanent director (who handled the

dissertation proposals) retired in January 2007. Currently two rotating officers manage the four components of the S & S program: one officer manages Ethics and Values in Science, Engineering and Technology (EVS) and Studies of Policy, Science, Engineering and Technology (SPS), and the other officer manages History and Philosophy of Science, Engineering and Technology (HPS) and Social Studies of Science, Engineering and Technology (SSS). Additional responsibilities involve two cross-directorate programs, Ethics Education in Science and Active Nanostructures and Nanosystems. The two officers work closely together. The plan is to have three full-time directors, one permanent and two temporary, and decisions will have to be made about how responsibilities should be divided among the three officers. This decision will need to be made by the program officers themselves in consultation with the SES division director.

The POs are currently considering whether one panel could be convened to consider all proposals in the 4 supported areas instead of 2 as is currently done. This might better reflect the unification of the ethics and policy research with the HPS and SSS research under one umbrella and might broaden the comparison classes for rating of proposals. Such a change should take into account possible impacts on individual panel members' workloads. Consideration should also be given to the question how this might affect the distribution of funds to the two groups (normative and theoretical/empirical).

The program brings together scholars to explore planning and prioritization and to collectively brainstorm about the shape of the field and development of the portfolio. Two examples are the workshops *Research Policy as an Agent of Change* (2003), and *Social Organizations of Science and Science Policy* (2006). The workshops show a desire to involve the wider scholarly community in the planning process. Another example is the "Dear Colleague" letter that was sent in the fall of 2006 to promote an exciting new initiative, *Impacts of Biology on Society*. Such initiatives may give the program the ability to respond quickly to new ideas and interests within the scholarly community.

Program officers are attuned to other initiatives that could be pursued and have some creative ideas about planning and prioritization. Some of these ideas build on research innovations in the scholarly community, such as recreating scientific experiments of historical significance, or exploring the use of new technologies such as computer simulations of experiments. In other cases, the program itself can initiate and promote innovations, one idea being to promote better integration of philosophy and sociology of science, two disciplines that currently do not interact very much. Officers are also thinking about early-stage developments at NSF that hold promise for Science and Society, in particular "Environment and Society" and "Science of Science and Innovation Policy".

4. Additional comments on program management:

The COV wishes to emphasize the importance of adequate staffing for successful management of the program. Three full-time program officers, one of whom is a permanent appointment, rather in a rotating position, is the minimum required. Over the last forty years, the program has been instrumental to the development of a community of scholars engaged in a full range of disciplinary and multidisciplinary studies of science and technology. In order that it continue to play this crucial role, adequate support for thee management of the program is critical.

PART B. RESULTS OF NSF INVESTMENTS

.
The NSF mission is to:

- promote the progress of science;
- advance national health, prosperity, and welfare; and
- secure the national defense.

To fulfill this mission, NSF has identified four strategic outcome goals: Discovery, Learning, Research Infrastructure, and Stewardship. The COV should look carefully at and comment on (1) noteworthy achievements based on NSF awards; (2) ways in which funded projects have collectively affected progress toward NSF's mission and strategic outcome goals; and (3) expectations for future performance based on the current set of awards.

NSF investments produce results that appear over time. Consequently, the COV review may include consideration of significant impacts and advances that have developed since the previous COV review and are demonstrably linked to NSF investments, regardless of when the investments were made.

To assist the COV, NSF staff will provide award "highlights" as well as information about the program and its award portfolio. Since relevant aspects of the Stewardship goal are included in Part A, the COV is not asked to respond to that goal in Part B.

B. Please provide comments on the activity as it relates to NSF's Strategic Outcome Goals. Provide examples of outcomes ("highlights") as appropriate. Examples should reference the NSF award number, the Principal Investigator(s) names, and their institutions.

B.1 OUTCOME GOAL for Discovery: "*Foster research that will advance the frontier of knowledge, emphasizing areas of greatest opportunity and potential benefit and establishing the nation as a global leader in fundamental and transformational science and engineering.*"

Comments:

The projects funded in this program are conceptually diverse and highly innovative. These projects advance the frontiers of the various disciplines encompassed by this program, but they do much more than that: they also provide crucial insight into how innovation in science and engineering occurs, and they reveal how knowledge is related to policy. The following sample illustrates the diverse ways that these projects contribute to our understanding of contemporary science and engineering, drawing on the different disciplines that are represented in this program. Most importantly, if we wish to understand how science and engineering can transform our understanding of nature, we must understand how science and engineering are practiced, what their histories are, and what the relationship is between science, technology, and society. The projects funded through this program

address these questions on many different levels, some more historical and some contemporary, as the examples below illustrate.

The proposal of William C. Clark (Harvard University), "Integrating knowledge and policy for the management of natural resources in international development: the role of boundary organizations" (SES 0621004) funded in 2006, is a 3-year study by an accomplished team of investigators. It will examine the different arrangements and types of organizations that might be successful in producing knowledge of sustainability in south Asia. This project will identify barriers to sharing knowledge and investigate how boundary organizations might help to solve the problem. This complex and ambitious project has important policy implications as it aims to promote the integration of knowledge and policy in natural resource management.

An interesting dissertation project is being completed by Tania Munz under the direction of Angela Creager (Princeton University). The dissertation, "Of Birds and Bees: Karl von Frisch, Konrad Lorenz and the Science of Animals" (AWD 432113) is a historical study of animal behaviorists Karl von Frisch and Konrad Lorenz, both winners of the Nobel Prize in 1973. Munz shows how the conception of the animal in science changed from being a tool used for the investigation of problems in physiology and anatomy, to one that posed problems of behavior that were worthy of study in their own right. By analyzing how ethology emerged as a coherent new field of study, this dissertation helps us to understand the relationship between intellectual progress in science and discipline formation. An article based on the dissertation was awarded the Marjorie Grene Prize (best graduate student paper) by the International Society for the History, Philosophy, and Social Studies of Biology.

In a project "Engineers and Metrics of Progress," (Award 0549442) Gary Downey (Virginia Polytechnic Institute) and Juan Lucena (Colorado School of Mines) are doing a comparative project on what counts as engineering around the world. The project shows how different countries, including the United States, the United Kingdom, France, Japan, and Mexico, have created diverse forms of engineering knowledge that fit with their specific conceptions of progress. Engineering knowledge thus emerges not as an internationally standardized technical domain, but as a diverse form of knowledge inflected by national cultures. Beyond its theoretical interest for understanding technology in cultural context, this research has significant practical implications, especially for training engineers who will work in a context of globalization.

An individual scholar's award to Paul Humphreys (University of Virginia), was entitled "Concepts of Dynamic Emergence" (0523678). In this project Humphreys used a computational approach to modeling emergence as a dynamic phenomenon rather than a static, synchronous one. Most philosophical models analyze emergence as a static phenomenon, treating it with notions such as supervenience or levels of organization. Humphreys' study suggested that dynamic models of self-constraining systems were more adequate as models of emergence and more relevant to the concepts of emergence as developed in complexity theory. This study is an example of research that integrates and extends theoretical advances in philosophy and a particular scientific field or subfield.

Simon Cole (University of California, Irvine) was awarded a CAREER grant (0347305) for a project entitled "Towards a Systems Analysis of the Utilization of Scientific Evidence in the Criminal Law". This was the first systematic study of misattributions (false positive errors) in fingerprint

identification. Cole analyzed the prevalence of misattributions in the US and the UK from 1920 to 2004, as well as their distribution across categories of offense. He drew on sociology of science and technology literature to propose a model for understanding this form of error in a widely used but understudied forensic technology.

B.2 OUTCOME GOAL for Learning: ***"Cultivate a world-class, broadly inclusive science and engineering workforce, and expand the scientific literacy of all citizens."***

Comments:
All the dissertation grants contribute to the cultivation of scientific literacy and to the cultivation of aworld class research community in S & S; thus we strongly believe that this program should be continued. In addition several research projects supported in the last 3 years investigate issues of gender and race in the scientific workforce. PO's with cooperation from panels attempt to increase the diversity of the S & S research community.

The following proposals are focused on development of training programs. In the following section (B.3) as well, examples address educational goals.

An SGTR grant to the University of Virginia (AWD 0241889) created a three-year program of research and graduate study focused on "Rethinking Technology, Nature, and Society". Led by faculty members John K. Brown, W. Bernard Carlson, and Edmund Russell, the program included the creation of graduate seminars, training of students as teachers in undergraduate courses, workshops held monthly and conference presentations, and a postdoctoral position. The disciplinary rationale behind the program was to integrate the history of technology and environmental history, while the intellectual rationale was to help students evaluate the impact of technology on the environment and to prepare them to confront the challenges that face our society. Efforts were also made to recruit students from under-represented minorities by working with UVA's Emerging Scholars Program. This highly-rated project is a model of interdisciplinary graduate training combining history and social sciences and focused on critical social and environmental issues.

An EVS award to Julia Brody (Silent Spring Institute, Newton, Mass.) was entitled "The Research Right-to-Know: Ethics and Values in Communicating Environmental Health Study Results to Individuals and Communities" (AWD 450837). This is a collaborative project initiated by the Silent Spring Institute, a nonprofit research group studying links between environment and women's health, and involving another community organization, Communities for a Better Environment, and faculty and students at Brown University. The goal of the project was to analyze the values implicit in different models of communicating risk to potentially affected communities, to identify the values framing reception of risk information, and to make recommendations on the basis of this analysis for improving such communication. As a collaboration between "town and gown" it could serve as an exemplar of innovative research, but we highlight it as a project dedicated to understanding and improving public scientific literacy.

Another SGTR (AWD 0338124) awarded to Alexander Rosenberg (PI) and colleagues at Duke University provides for a postdoctoral/graduate research and training program in philosophy of biology. As the proposal summary indicates, "the philosophy of biology is one of the most fertile and exciting areas of contemporary intellectual interest." As an arena of intense interaction between philosophers and scientists it has taken on many of the challenging issues in theoretical biology. This research and training grant enables the faculty at arguably the premier center for philosophy of biology in the US to intensify their educational efforts with a three year program involving postdoctoral fellowships and graduate student awards. The focus of the program will be on the currently frontier area of interaction between evolutionary and developmental biology. Postdoctoral fellows, one a year, are selected on the strength of applications detailing proposed research. They conduct a seminar on that topic and work with three advanced graduate students during the year, which culminates in a conference for biologists and philosophers on the selected topic. The grant directly impacts 12 younger scholars, and indirectly, through the conference, communicates the latest in philosophical research on evolutionary and developmental biology and their interrelation to the larger community of biologists and philosophers of science.

In the area of graduate training, the significant projects include a grant to Naomi Oreskes (AWD 0349956) of the UCSD Science Studies Program. This grant supported graduate and post-doctoral training designed to enable them to become experts in the field of science and technology studies (STS). The project, which had the theme "Proof, Persuasion, and Public Policy," offered a number of training opportunities, including a core seminar on models and prediction, workshops and colloquia, and postdoctoral training for two young scholars (both of whom received tenure-track job offers after spending time at UCSD). This project is a good example of a training program aimed at building a workforce that can use theoretical frameworks from STS research (such as studies of how communities evaluate the credibility of knowledge claims or the predictive power of models) to illuminate issues of public policy.

B.3 <u>OUTCOME GOAL for Research Infrastructure: "</u>*Build the nation's research capability through critical investments in advanced instrumentation, facilities, cyberinfrastructure and experimental tools."*

Comments:

Research in S & S involves both the development of tools and infrastructure that will facilitate education and research in our own field. These include searchable websites, digital libraries, and accessible databases. S & S scholars also study the effectiveness of instrumentation, cyber- and other infrastructure, and experimental tools in the natural and social sciences we study. Here we cite one example of each type.

Historian of science William Newman (Indiana University) was awarded a grant for an innovative publication project, "The Chymistry of Isaac Newton: A Proposal for STS and International Digital Libraries" (AWD 0324310). In addition to producing a book on Newton's alchemical work, the

project involved creation of a digitized online edition of Newton's alchemical and chemical papers, with the goal of understanding the laboratory program that Newton developed. The broader impact of the project includes creation of a more accurate picture of Newton as a scientist. Both NOVA and the BBC showed interest in the study, showing that has broad appeal to the public. The goal is to create a web-based edition of Newton's work that will be accessible to the public. The project will create an educational resource that can be used by public schools and other institutions of education, as well as by scholars.

Philosopher of science Clark Glymour (Carnegie Mellon University) received a grant for the project "Issues in Maintaining Scientific Integrity in Applications of Automated Methodology" (AWD 0221838). Glymour's project is an investigation of problems arising from reliance on automated procedures for analyzing large data sets. Thus it is a study designed to improve scientific research infrastructure. Glymour selected four examples of algorithmic data analysis for examination: neural nets in mineral composition analysis; computerized analysis of climate variables in producing seasonal forest fire forecasts; the use of microarrays in gene expression research; and statistical methodologies in epidemiological research. In three of these cases, reliance on automated data analysis procedures for model testing resulted in mistaken inferences being made and perpetuated until corrected by analysis by more traditional methods. In a fourth case, there has been no effort to calibrate the results of automated forecasting with the results of more traditional methods. These are not errors of wishful thinking or malice, but of misplaced confidence in new technologies. Glymour analyzes the nature and consequences of the various errors and will make recommendations for quality control standards in this important dimension of contemporary scientific research.

PART C. OTHER TOPICS

C.1 Please comment on any program areas in need of improvement or gaps (if any) within program areas.

Overall, management of this program is excellent, but the two PO's are clearly overworked. We believe that a minimum of three PO's is needed for this program, and that one should be permanent, with the other two rotating.

C.2 Please provide comments as appropriate on the program's performance in meeting program-specific goals and objectives that are not covered by the above questions.

The task of addressing S&S issues, like other areas of NSF activity, involves both capacity building and taking advantage of important opportunities for advancing

research. The S&S programs have had a significant impact in both respects. The existence of these programs in NSF has produced a wide body of research results and it has also contributed to the growth of a vibrant research community. As the program evolves, the COV believes that it will need to find ways to expand the number of scholars working in this domain. The role of the S&S program in helping develop an NSF effort to address the social and ethical issues surrounding nanotechnology nicely illustrates the importance of having institutionalized capacity in place. The existence of NSF's successful S&S programs, and the diverse academic workforce with relevant expertise that these programs have cultivated, enabled the Foundation to respond quickly and appropriately. As with other basic research, investigations in the history, sociology, philosophy, anthropology of science, and science & technology studies, can become relevant to development in completely new areas.

C.3 Please identify agency-wide issues that should be addressed by NSF to help improve the program's performance.

See comments under C. 4.

C.4 Please provide comments on any other issues the COV feels are relevant.

The COV believes that any field of science and engineering that expects to have a significant impact the way Americans live and work in the future should be actively engaged with science and society concerns. In an era of rapid technological and scientific change, research into the social, historical, ethical, and philosophical dimensions of science and technology (S&T) is relevant to a variety of pressing societal concerns. In light of the high-impact of science and technology, its importance to national competitiveness, its value in public policy deliberations, and the ethical and social issues that it raises, the S&S programs have a vital role to play across the entire NSF.

Maintaining the core mission while expanding into new areas. We believe that all current forms of funding are important and should be continued. It is clear that this Program should participate in broader NSF initiatives such as the Nanostructures and Nanosystems initiative, and program directors have correctly identified significant ways in which this Program contributes to these broader goals at NSF. Looking to the future, it is likely that such emerging initiatives as Environment and Society, or Science of Science Innovation and Policy, will both generate keen interest in the scholarly community encompassed by S and S. These are worthwhile efforts; the "Dear Colleague" letter on biology and society represents an appropriate model for soliciting relevant research proposals. Similar efforts are worthwhile in such areas as computer science and environmental sciences. However, while we are enthusiastic about such expansion, it is also important that participation in these special initiatives not erode the core work of the Program, which supports the development of the various disciplines and sub-disciplines in history, philosophy, and social studies of science, engineering and technology. Research and educational programs in these fields depend crucially on the support of

NSF and the breadth of coverage that the Program now has should be preserved. As new initiatives are explored, there is also a need to expand the base or core activities that enable the scholarly community to thrive

Future research and training needs and opportunities. Since the last big round of IGERT funding in S&S (in the early to mid 1990s) and partly as a consequence of that, the field has developed substantially. The IGERT funding helped develop a cadre of scholars through graduate student and postdoctoral support, fostered the development of cross- and interdisciplinary partnerships within institutions, and made S&S scholarly activity more visible nationally. The COV believes that some new initiatives similar in scale to the IGERT and dedicated to consolidating the advances made in the past 15 years could have similar effect and we urge the Foundation to consider another round of such funding. In addition, we agree with POs that developments in philosophy of science and social studies of science in the last five years provide openings for greater interaction and potential collaboration among researchers from the two areas. An exploratory workshop or mini- along the lines of the RPAC workshop could be very helpful in catalyzing such collaborations. We notice that a few projects in the last 10 years have addressed science and technology issues in developing societies. Many projects we could envision, especially related to the Environment initiative, would be focused on science and technology in developing societies. Here again an exploratory workshop could be of use in helping frame issues and identify potential areas of concern. Such research is in any case likely to be more costly and cumbersome to administer and we urge the program to consider how to respond to what is likely to be an emerging area of scholarly interest.

Tranformative Research. The S&S programs are crucially relevant to the new NSF effor**t to** encourage transformative research. Historical research on intellectual and social change in science; philosophical inquiries into the conceptual foundations of theories and methods; sociological studies of episodes of scientific controversy; research on the creation and spread of high-impact technologies; and ethnographic studies that probe how research communities conceptualize problems and interpret evidence—these are all centrally to understanding the complex processes through which major innovations take shape and, equally important, encounter support and/or resistance in the research community and the wider world. Indeed, no other field takes transformation in science and technology as one of its major objects of study.

Science of Science and Innovation Policy. The COV was impressed with the excellent articulation of a broad research agenda in the February 2007 report of the NSF Workshop on Social Organization of Science and Science Policy. The science of science and innovation policy will require conducting a wide range of studies on topics including innovation and well-being; social environments for innovation and creativity; political economic of science, technology, and innovation policy; evidence and expertise in science-intensive decisions making, and science, technology, innovation, and global change. The COV believes that the S&S programs have much to contribute to this domain.

C.5 NSF would appreciate your comments on how to improve the COV review process, format and report template.

SIGNATURE BLOCK:

Helen Longino
Sharon Kingsland
Stephen Hilgartner

_____

For the Science & Society COV
Helen Longino
Chair

Sociology

FY 2007 REPORT FOR
NSF COMMITTEES OF VISITORS (COVs)

Program: Sociology
Number of actions reviewed: Awards: 30 Declinations: 60 Other: 0
Total number of actions within Program/Cluster/Division during period under review: **Awards: 262 Declinations: 721 Other: 92**
Manner in which reviewed actions were selected: **The population of all proposals that were awarded and declined in each of the three years covered by the COV was generated from the NSF database.** **The list for each fiscal year was then sorted into two lists of Research (includes Small Grants for Exploratory Research and conferences and workshops) and Doctoral Dissertation Research proposals.** **Each of these six lists were then sorted alphabetically (by PI last name) into awards and declines, and numbered.** **The total number of proposal desired of each type (sample size) was divided into the total number of proposals on each list. This number was used to select every nth proposal. For example, in 2006 there were 49 regular research awards; to get a sample of 5, the total awards, n=49, was divided by 5, rounded down to 9 and then every 9th proposal was selected.** **When selected, only one proposal from a collaborative set was counted in the sample n.**

PART A. INTEGRITY AND EFFICIENCY OF THE PROGRAM'S PROCESSES AND MANAGEMENT

Briefly discuss and provide comments for *each* relevant aspect of the program's review process and management. Comments should be based on a review of proposal actions (awards, declinations, and withdrawals) that were *completed within the past three fiscal years*. Provide comments for *each* program being reviewed and for those questions that are relevant to the program under review. Quantitative information may be required for some questions. Constructive comments noting areas in need of improvement are encouraged.

A.1 Questions about the quality and effectiveness of the program's use of merit review procedures. Provide comments in the space below the question**.** Discuss areas of concern in the space provided.

QUALITY AND EFFECTIVENESS OF MERIT REVIEW PROCEDURES	YES, NO, DATA NOT AVAILABL

	E, or NOT APPLICABLE[24]
1. Is the review mechanism appropriate? (panels, ad hoc reviews, site visits) Comments:	Yes
2. Is the review process efficient and effective? Comments:	Yes
3. Do the individual reviews (either mail or panel) provide sufficient information for the principal investigator(s) to understand the basis for the reviewer's recommendation? Comments:	Yes
4. Do the panel summaries provide sufficient information for the principal investigator(s) to understand the basis for the panel recommendation? Comments:	Yes
5. Is the documentation for recommendations complete, and does the program officer provide sufficient information and justification for her/his recommendation? Comments:	Yes
6. Is the time to decision appropriate? Comments:	Yes

[24] If "Not Applicable" please explain why in the "Comments" section.

7. Additional comments on the quality and effectiveness of the program's use of merit review procedures:

Note: Comments in A.1 through A.4 pertain to the Regular Proposals. A narrative discussing the Dissertation Grant Proposal process follows Section A.4.

The overall quality of the merit reviews is very good although some ad hoc reviewers appear to give cursory reviews that are not helpful to investigators whose proposals are declined. In general, the ad hoc reviewers tend to have shorter reviews than the panel members. The number of ad hoc reviewers varies but it may reflect the content or size of the proposal. However the overall number of reviewers is adequate for merit review. The Program Officers could encourage more thoughtful reviews from ad hoc reviewers so that the panel discussions could be better informed and the burden on the staff to prepare the summaries and review analyses could be reduced.

The panel members and Program Officers pay careful attention to the review text and give much less consideration to the absolute scores given by reviewers. They demonstrate a commitment to garner the strengths and weaknesses addressed in each review, regardless of the letter ratings. This extra effort produces high quality panel summaries and review analyses. This careful process ensures greater clarity for investigators who look to review text to provide guidance for improving their proposals, and simplifies for panelists the process of having to assess and rank a group of proposals as a body during each round.

The Program Officers and panelists have done an exceptionally good job of keeping the dwell time at an acceptable level for grant proposals. Few proposals are not reviewed in six months which should be expected based on the panel meeting twice each year.

Recommendation: Program Staff prepare a detailed template for ad hoc reviewers.

A.2 Questions concerning the implementation of the NSF Merit Review Criteria (intellectual merit and broader impacts) by reviewers and program officers. Provide comments in the space below the question. Discuss issues or concerns in the space provided.

IMPLEMENTATION OF NSF MERIT REVIEW CRITERIA	YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE[25]
1. Have the individual reviews (either mail or panel) addressed both merit review criteria? Comments:	Yes
2. Have the panel summaries addressed both merit review criteria? Comments:	Yes
3. Have the *review analyses* (Form 7s) addressed both merit review criteria? Comments:	Yes

[25] In "Not Applicable" please explain why in the "Comments" section.

4. Additional comments with respect to implementation of NSF's merit review criteria:

In general, the reviewers take seriously the request to address both criteria although many broader impacts statements are not detailed. Some broader impact statements written by ad hoc reviewers address only the impact on the profession and describe how the project will lead to further research. However, the panel summaries and the review analyses go much further and address both criteria exceptionally well. Ad hoc reviewers who provide a good discussion of the broader impacts indicate to researchers the importance of this criterion and the longer reviews help the Program Officers to prepare panel summaries and review analyses.

Recommendation: Program Staff encourage ad hoc reviewers to fully explain the broader impacts of the research.

A.3 Questions concerning the selection of reviewers. Provide comments in the space below the question. Discuss areas of concern in the space provided.

SELECTION OF REVIEWERS	**YES , NO, DATA NOT AVAILABLE, or NOT APPLICABLE** [26]
1. Did the program make use of an adequate number of reviewers? Comments:	Yes
2. Did the program make use of reviewers having appropriate expertise and/or qualifications? Comments:	Yes
3. Did the program make appropriate use of reviewers to reflect balance among characteristics such as geography, type of institution, and underrepresented groups?[27] Comments: Sufficient data not available to determine if the proportion of underrepresented groups is balanced.	Yes
4. Did the program recognize and resolve conflicts of interest when appropriate? Comments: Data not available on conflicts of interest.	Not Applicable

[26] If "Not Applicable" please explain why in the "Comments" section.
[27] Please note that less than 35 percent of reviewers report their demographics last fiscal year, so the data may be limited.

5. Additional comments on reviewer selection:

The Program Officers report that some effort is required to obtain a sufficient number of ad hoc reviewers, especially for proposals where the subfield is small. For many proposals, they ask for more reviewers than necessary assuming that some will not complete their reviews. The Program Officers appear to have addressed this problem effectively and the average number of reviewers is adequate for a careful evaluation.

The choice of ad hoc reviewers is somewhat beyond the control of the staff. While ideally there would be at least one senior researcher in the appropriate disciplinary subfield reviewing each proposal, it is not often possible to recruit one. In addition, if more senior scientists were recruited, it would conflict with the need to diversify the types of reviewers. The Program Staff should be commended for attempting to balance these conflicting goals.

The data needed to evaluate the number/proportion of reviewers from underrepresented groups are not available. The review panel had a reasonable proportion of reviewers from these groups and it is likely to be similar to the overall proportion of potential panelists.

Recommendation: The Program Staff attempt to increase the proportion of senior scientists as ad hoc reviewers while paying careful attention to the overall diversity of the reviewers.

A.4 Questions concerning the resulting portfolio of awards under review. Provide comments in the space below the question. Discuss areas of concern in the space provided.

RESULTING PORTFOLIO OF AWARDS	APPROPRIATE, NOT APPROPRIATE[28], OR DATA NOT AVAILABLE
1. Overall quality of the research and/or education projects supported by the program. Comments:	Yes
2. Are awards appropriate in size and duration for the scope of the projects? Comments:	Yes
3. Does the program portfolio have an appropriate balance of: • Innovative/high-risk projects?[29] Comments: The Sociology Program has made a series of grants to innovative/high risk projects during this period. These include three projects related to events surrounding hurricane Katrina; one project that explored public reactions to the Madrid terrorist attacks; one project that gauged citizen's reactions to immigration; and seven grants through collaboration with the Department of Homeland Security on "The Social Science of Disasters, Terrorism and Homeland Security."	Yes
4. Does the program portfolio have an appropriate balance of: • Multidisciplinary projects? Comments:	Yes

[28] If "Not Appropriate" please explain why in the "Comments" section.
[29] For examples and concepts of high risk and innovation, please see Appendix III, p. 66 of the Report of the Advisory Committee for GPRA Performance Assessment, available at <www.nsf.gov/about/performance/acgpa/reports.jsp>.

5. Does the program portfolio have an appropriate balance of: • Funding for centers, groups and awards to individuals? Comments: The Sociology Program receives few proposals from centers. The collaborative research proposals are appropriate relative to the total number of funded proposals.	Not applicable
6. Does the program portfolio have an appropriate balance of: • Awards to new investigators? Comments: The data provided by Program Officers indicate that from 2004-2006 about two-thirds of the proposals were submitted by PIs or Co-PIs who had not previously received an NSF award. As expected PIs who had previously received awards were more successful in securing funding (29% vs. 17% for new PIs in the three year period). However, by 2006, the proportion of awards to new PIs increased to 22 percent which narrows the gap substantially.	Yes
7. Does the program portfolio have an appropriate balance of: • Geographical distribution of Principal Investigators? Comments: Proposals from investigators from California and New York are the highest proportion but the distribution by state is more evenly distributed in 2006 than in prior years. The funding rate for projects from EPSCoR states varied over the period. The Sociology Program appears to be increasing the geographical diversity of the awards.	Yes
8. Does the program portfolio have an appropriate balance of: • Institutional types? Comments: Research intensive universities submit the most proposals and receive the most awards. However, the proportion of awards to other institutions over the three years has increased.	Yes

9. Does the program portfolio have an appropriate balance of: • Projects that integrate research and education? Comments:	Not applicable
10. Does the program portfolio have an appropriate balance: • Across disciplines and subdisciplines of the activity and of emerging opportunities? Comments: Sociology has wide number of subdisciplines so that limited funding does not allow the awards to cover all subdisciplines. The portfolio appears to be responsive to best proposals and funds innovative proposals from new areas such a network analysis and mathematical sociology.	Yes
11. Does the program portfolio have appropriate participation of underrepresented groups? Comments: Since 2004, the Sociology Program has either closed the gap between funding of projects with and without the involvement of minority PIs, or had minority-PI projects slightly exceed non-minority-PI projects. Results for women-involved projects show funding rates very close to those projects that don't involve women PIs over the same time period, although it is not until 2006 that these rates are equal.	Yes
12. Is the program relevant to national priorities, agency mission, relevant fields and other customer needs? Include citations of relevant external reports. Comments: See response to item 3 above for relevant comments about the portfolio.	Yes
13. Additional comments on the quality of the projects or the balance of the portfolio:	

The Sociology Program has a diverse portfolio that supports research in the core areas of sociology and many important subdisciplines. Its awards further the basic science in sociology across a wider array of sociology research topics. Its portfolio is far more diverse and balanced than any other funding source. Many important and innovative research projects in sociology would not be possible without Program funding. The Program is the most important funding source for a variety of transformative research in the discipline

At the same time, the Program has provided awards that are responsive to national and Foundation priorities. Not all sociological research can be directly applied to larger social issues but four examples of types of projects supported by the Program demonstrate its commitment to both science and policy.

- The Program worked with DHS to fund portions of the GSS, ANES, and TESS that will focus on attitudes towards terrorist activities and citizen preparations for terrorism.

- The Program has awarded SGERs to conduct research on the impact of Katrina on the residents of the affected states. In addition, sociologists have also received awards from the HSD initiative to study the impact of Katrina. This research will make it easier to understand and prepare for future similar disasters.

- Immigration to the US results from a complex set of individual, family, regional, and national factors. Understanding these factors is critical for both the immigration policy and the US economy. The Program has made multiple awards that fund high quality research on immigration that can help understand the impact on the US society and develop appropriate programs. Some researchers, like Portes, and Massey, have already provided significant input into immigration policies in the US.

- The Sociology Program supports the study of international issues and provides awards to improve our understandings of other societies and cultures. For example, two projects directed by Moaddel Mansour will further our understanding of the cultures of the Middle East. In addition, at least 10 additional awards were made that focused on international issues.

The Sociology Program further improves sociological research by its encouragement of sociologists to participate in cross-cutting initiatives such as the HSD. The portfolio is enhanced by the Programs support of researchers in other programs and more especially by its ability to convince other programs to jointly fund important projects. Collectively, the Sociology Program portfolio is designed to lead to advances in sociological research and yield discoveries important for shaping national policies.

Recommendation: The Sociology Program continue to balance its portfolio by providing awards to projects that will advance the science of sociology and address national priorities.

Despite the many success of the Sociology Program, it would benefit from a focused review of the emerging fields and promising researchers in sociology to determine which might be funded to generate transformative research. The COV does not have sufficient time to undertake this task and the Program Staff need diverse input to make recommendations for target research areas. Broad input

from senior scientists in the profession would help NSF and the Program target the most promising research areas.

Recommendation: The Sociology Program should organize a small conference of distinguished researchers known for their creativity and forward thinking to discuss and make recommendations for funding for awards that may lead to transformative research.

Dissertation Improvement Grant Program in Sociology

The Sociology Dissertation Improvement Grant Program in Sociology has continued to receive a large number of proposals annually during the 2004, 2005 and 2006 cycles (152,179, and 155 respectively). The funding rate during those years was 31%, 22% and 23%. The Dissertation Proposals are reviewed by an advisory panel comprised of directors of graduate studies in sociology and those with extensive experience in graduate education. (The proposals are not sent to ad hoc reviewers.) Because the reviewers have extensive experience in managing and advising graduate students and their research, they are especially appropriate for the task, and we note also that, as a group, these reviewers are broadly representative of region and are gender and racially diverse.

This review process appears to work well, resulting in sufficient information being provided to PIs to understand the basis for panel recommendations. The dwell time is appropriate, and the reviews (three for each proposal) are thorough and consistently address both the intellectual merit and broader impacts of the proposed research. Panel summaries also consistently address both intellectual merit and broader impacts, as do the review analyses.

The review process has resulted in a strong and diverse portfolio of funded dissertation projects including ones on ethnic stratification, citizen engagement, labor conflict, residential segregation, educational inequality, parenthood and well-being, and mergers and acquisitions in the telecommunication industry.

Recommendation: The Sociology Program should attempt to balance the awards to quantitative and qualitative dissertation research proposals.

A.5 Management of the program under review. Please comment on:

1. Management of the program.
Comments:

The Sociology Program is managed well. The COV was impressed with the integration of the Sociology Program into the NSF decision making processes. In addition, the Program Officers work

cooperatively and collaboratively with many programs.

2. Responsiveness of the program to emerging research and education opportunities.
Comments:

The Sociology Program Officers have effectively encouraged sociologists to participate in new initiatives such as the HSD.

3. Program planning and prioritization process (internal and external) that guided the development of the portfolio.
Comments:

The Program Officers have guided the portfolio so that it addresses a variety of important scientific issues in sociology. In addition, they are forward looking in anticipating new research areas and the implications of these areas for national policies.

4. Additional comments on program management:

COV members discussed several important issues related to the management of the Sociology Program. These include the management of budget constraints and expansion of resources to fund sociological research; the history of rapid turnover of the Program Officer in the rotating position; the workload of the Program staff that results from this instability, combined with effort by Program Officers devoted to other extra-program tasks, especially new NSF initiatives; and the appropriateness of continuing Program Budget guidelines. While we recognize that there are structural difficulties in resolving these issues, we want to make special note that the first three concerns were also raised by the 2004 Sociology COV.

The Sociology Program core budget has increased about 10 percent over the last six years. This modest increase has caused the Program Officers to aggressively take advantage of new NSF initiatives to increase funding for sociological research. By doing so, they have succeeded in expanding the funds made available to support basic sociological research. The efforts of Pat White in this regard have been outstanding, and COV members very much appreciate her unflagging commitment to the joint review of proposals, her hard work with the IGERT program, and the exploitation of new initiatives such as HSD. We have also learned that funding from the NSF Sociology Program has served as a positive sign that signals the merit of good proposals to other organizations that provide research funds. For example, NIH and private foundations are more likely to provide additional funding support – and sometimes quite substantial support – to proposals that have already received funding from the Sociology Program. These efforts have helped support sociological research far beyond what would been possible from the core funding of the Sociology

Program alone.

Over the last decade there has been a pattern of rapid turnover among rotating Program Officers. Rotators have tended to serve one or two years at the longest. The 2004 COV encouraged efforts to bring rotators on board for longer periods of time, and we reiterate that suggestion. The rapid turnover requires the career Program Officer to be in an almost constant training mode, thereby distracting her from her core tasks of managing grant reviews and awards.

Since the last COV review, the Sociology Program fielded its "Qualitative Research Initiative" which appears to have been successful in bringing in a larger proportion of proposals employing qualitative methods, especially among dissertation proposals. The initiative was apparently responsible for the spike in regular proposal submissions (219) in the 2005 cycle, up substantially from the 2004 cycle (144). And, while the number of submissions of regular proposals subsided somewhat in 2006 (173), it remained about 10 percent larger than 2004, exacerbating the workload of Program staff.

The 2004 COV noted the need for additional staff to carry the workload of the Sociology Program, and the addition of Kevin Gotham appears to have helped ease the excessive workload to some extent. Our observations and discussion with Program staff convinced us, nevertheless that there remains a need for additional staff to help carry the enormous workload of the Program. Furthermore, we are concerned that the workload problem in the Sociology Program could actually worsen, since the next incumbent of Kevin Gotham's position could be drawn into working extensively for other programs.

The management model of having a permanent program director and rotators is basically sound. The permanent program manager brings stability, managerial and organizational knowledge, and a broad understanding of the field. The rotator brings new ideas and broadens the knowledge of sociology. However, the almost continuous training new rotators creates potential inefficiencies. The current Program workload could easily support two rotators.

Recommendation: The Sociology Program recruit two rotators or one rotator beyond the one or two years that has become the norm duration of incumbency.

COV members reviewed the Sociology Program budget guidelines for awards. These guidelines include: no academic year release time for PIs at Research 1 Universities; PI summer salary capped at $15,000 per year, regardless of salary; no computer purchases unless compelling justification provided; no travel to professional meetings; no routine communication (e.g. telephone) expenses and supplies; and, for secondary data analysis projects, a maximum of two years of support and only one graduate student (or programmer) per year unless specifically and convincingly justified.

Program Officers report that as a consequence of these guidelines a greater proportion of funds has been directed to student support, both graduate and undergraduate, while still allowing the Program Budget to provide some level of support to nearly all projects that review panels recommended for funding. COV members applaud the motives behind the guidelines, appreciate the consequences of their application, and support the continuing use of these guidelines in the future.

Recommendation: The Sociology Program continue its guidelines for funding of awards.

The sociology dissertation grants have been very successful in supporting new scientists who will continue to do important basic and policy research. In addition, the Program Officers report that the awardees continue their involvement with NSF as both program reviewers and proposal submitters. Anecdotal evidence suggests that previous dissertation grant recipients begin submitting proposals to the Sociology Program very early in their careers, and this might explain some of the recent increase in the number of regular proposals. However, only anecdotal information is known about scientific productivity of the awardees.

A small research project that documents the early career successes of dissertation grant awardees would benefit sociology and other disciplines. The 2004 COV encouraged the Sociology Program to track the career trajectories of past dissertation grantees so that their career successes might be compared with a sample of non-grantees in the same PhD cohorts. The Program Officers have discussed the project with officers of the American Sociological Association, but to date such a project has not been launched.

Recommendation: The Sociology Program support a graduate student who would conduct research on dissertation awardees to determine their early career patterns.

PART B. RESULTS OF NSF INVESTMENTS

.
The NSF mission is to:

- promote the progress of science;
- advance national health, prosperity, and welfare; and
- secure the national defense.

To fulfill this mission, NSF has identified four strategic outcome goals: Discovery, Learning, Research Infrastructure, and Stewardship. The COV should look carefully at and comment on (1) noteworthy achievements based on NSF awards; (2) ways in which funded projects have collectively affected progress toward NSF's mission and strategic outcome goals; and (3) expectations for future performance based on the current set of awards.

NSF investments produce results that appear over time. Consequently, the COV review may include consideration of significant impacts and advances that have developed since the previous COV review and are demonstrably linked to NSF investments, regardless of when the investments were made.

To assist the COV, NSF staff will provide award "highlights" as well as information about the program and its award portfolio. Since relevant aspects of the Stewardship goal are included in Part A, the COV is not asked to respond to that goal in Part B.

B. Please provide comments on the activity as it relates to NSF's Strategic Outcome Goals. Provide examples of outcomes ("highlights") as appropriate. Examples should reference the NSF award number, the Principal Investigator(s) names, and their institutions.

B.1 OUTCOME GOAL for Discovery: *"Foster research that will advance the frontier of knowledge, emphasizing areas of greatest opportunity and potential benefit and establishing the nation as a global leader in fundamental and transformational science and engineering."*

Comments:

B.2 OUTCOME GOAL for Learning: *"Cultivate a world-class, broadly inclusive science and engineering workforce, and expand the scientific literacy of all citizens."*

Comments:
B.3 <u>OUTCOME GOAL for Research Infrastructure: "</u>*Build the nation's research capability through critical investments in advanced instrumentation, facilities, cyberinfrastructure and experimental tools."* Comments:

The NSF Outcome Goals for Discovery and Research Infrastructure are most relevant to the Sociology Program. The Outcome Goal for Learning is strongly supported by NSF Dissertation Grants and research opportunities available to graduate and undergraduate students. Many research projects include funds to support graduate student research and the Program provides support for the REU.

The Outcome Goal for Discovery is the focus of most awards given by the Program. In addition, the Program is involved in a number of initiatives that extend discovery through cross-program initiatives. The Sociology Program has generated substantial research directly related to this goal.

The recent experience of the Sociology Program has made clear that NSF cross-program initiatives have had the effect of encouraging fundamental and transformation research projects among sociological researchers. Human and Social Dynamics (HSD) is an example of such a cross-program initiative that spawned many innovative proposals from sociologists that were funded and made important contributions. An excellent example of such a project focused upon social isolation in American, demonstrated the startling finding that Americans have fewer friends outside of their families now than two decades ago, and in doing so adds importantly to our knowledge of declining civic engagement in America.

> **Lynn Smith-Lovin** (Duke University), **Miller McPherson** (University of Arizona), Alex Rosenberg, Stephen Teitsworth, *Social Isolation in America: Results from the First Phase of the Networks and Niches Project*. The PIs answer key questions of association theory by comparing responses to questions regarding social networks, voluntary groups, and social isolation in America, using data from the 1985 and 2004 General Social Survey. They found that reports of close confidants in voluntary groups decreased, while reports of close confidant networks among spouses and parents increased.

During the 2004-2006 Award cycle two sociologist PIs won awards from the HSD Program to investigate important aspects of the responses to and the social consequences of hurricane Katrina.

> **Mary Waters** (Harvard University), Jean Rhodes, Christina Paxson, *Adversity and Resilience: Effects of Hurricane Katrina on Vulnerable Populations*. The PIs investigate how varying levels of resources and capacities of low-income, minority parents before Hurricane Katrina affected their ability to adjust to the trauma caused by the hurricane. Both quantitative and qualitative research was used.
>
> **Ronald Angel** (University of Texas- Austin), **Laura Lein**, *Katrina Evacuees: The Transformation from Disaster Victims to Welfare Recipients: An Interdisciplinary Approach*. The PIs interviewed Hurricane Katrina refugees and service providers in Austin, TX, to test theories of civil society. They found that the combination of changing federal guidelines and the large number of NGOs led to confusion, and refugees received ineffective service in the year following the disaster.

Another example of the creative response to a cross-program initiative is that of the Department of Homeland Security and National Science Foundation Collaboration, entitled The Social Science of Disasters, Terrorism and Homeland Security. Sociology Program Awards in response to this initiative include:

> **Clark McCauley**, Bryn Mawr College, *SGER: DHS and NSF Collaboration: Developing Polls to Test Theories of Radicalization and Potential for Radicalization*
>
> **Gary LaFee**, University of Maryland, College Park, *SGER: DHS and NSF Collaboration: Creating an Archive of Preparedness and Homeland Security Survey Data*
>
> **Arthur W. Lupia**, University of Michigan, Ann Arbor, *SGER: DHS and NSF Collaboration: Expansion of the American National Election Study: Gauging the Public's Attitudes on Terrorism and Homeland Security.*
>
> **Diana C. Mutz**, University of Pennsylvania, SGER: *DHS and NSF Collaboration: Time-Sharing Experiments on Disaster Risk Communication and Preparedness*
>
> **Tom W. Smith**, National Opinion Research Center, SGER*: DHS and NSF Collaboration: General Social Survey Module on Citizen Preparedness for Terrorist Acts in the United States*

Frank P. Stafford, University of Michigan, Ann Arbor, SGER: DHS and NSF Collaboration: *Aftermath of Hurricane Katrina: Tracking PSID Families in Louisiana, Mississippi, and Alabama*

Sociological researchers are well equipped to respond to cross-program initiatives because they share a disciplinary concern with current social problems; they possess a diverse methodological kit bag appropriate to addressing a wide range of research problems concerning families, groups, organizations and communities; and, importantly, they can rely upon large scale existing scientific data infrastructures that have been created under NSF auspices such as the General Social Survey (GSS) and the Panel Study of Income Dynamics (PSID).

For these reasons sociological scientific researchers have been able to creatively respond to cross-program initiatives that have been developed to encourage attention to widely recognized societal problems as well as important national goals. We expect this willingness and enthusiasm for fielding new innovative and creative work in response to cross-program initiative to continue into the future. Such responses, as well, are enhanced by the theoretical richness, methodological rigor and scientific quality of the research that has been funded during the last three years by the NSF Sociology Program. Below we briefly showcase a number of recent Awards that display the current Program grant portfolio illustrating how well that research serves to position sociological researchers to respond to new cross-program initiatives such as the American Competitiveness Initiative and potential initiatives around impending environmental problems. The clusters of projects are organized around theoretical and substantive foci that we believe are especially germane to such initiatives.

In the Sociology Program we specifically note four areas of core strengths that are well represented in the recent and longer-term past portfolio of funded research and that well position the sociological research community to respond to cross-program initiatives. These include **stratification and social/economic inequality, including work, organizations, and families; group conflict over the environment; social networks; immigration, migration, and globalization.**

The areas of **stratification and social/economic inequality are central to the discipline of sociology**, continue to occupy the efforts of some of the discipline's best researchers, and several recently funded projects exemplify this focus. Recent projects sought to understand the distribution of opportunity between the sexes and among workers, segregation in the workplace and in neighborhoods, the acquisition of human capital, and the ways policy can correct or exacerbate the unequal distribution of resources. Related studies on **work, organizations, and families** explored workplace and wage discrimination against mothers and their commitment to work, how families balance work and family commitments and household labor, the transition to adulthood, and influences on children's weekend activities. These several lines of work are directly germane to concerns about a competitive workforce in America. Representative projects supported include:

Dobbin, Frank, Harvard University, *Equal Opportunity Innovations at Work: Mechanisms for Reducing Job Segregation*, jointly funded by Innovation and Organizational Change, and Law and Social Sciences.

Stovel, Katherine, University of Washington, *Hearing About a Job: Networks, Information and Segregation in Labor Market.* Jointly funded by the Methodology, Measurement and Statistics Program.

Correll, Shelley, Cornell University, *Motherhood and Labor Market Outcomes*.

Treas, Judith, University of California, Irvine, *The Division of Household Labor in Three-Dozen Countries*,

A second area of ongoing research focus of sociologists is collective action in general with quite extensive interest in collective action surrounding environmental issues specifically. Two strong projects aiming to understand how citizen action around environmental problems develops and the conditions under which it has impact on public policy received awards in recent cycles. Other projects and several dissertation proposals received awards in earlier cycles. These and related questions will become even more important in future years as the public dialogue surrounding global warming and associated environmental issues becomes more intense. The two project awards in recent funding cycles include:

Carmin, JoAnn, Massachusett Institute of Technology, *Navigating Transnational Forces: Continuity & Change in Environmental Movement Organizations in Central & Eastern Europe.* Jointly funded with the Office of International Science and Engineering.

Olzak, Susan, Stanford University and **Sarah Soule**, Cornell University, *Collaborative Research on Advocacy Group Activity and Legislative Change Concerning the Environment*.

Two areas of especially strong focus in recent funding cycles of Sociology Program demonstrate the theoretical richness and scientific sophistication and we believe should be targeted for future initiatives as they have the potential for transforming the directions in sociological research and contributing to our understanding of key social processes that are linked to competitiveness.

We suggest, first, **social network models and analyses** as an important area for future investment as it has shown great intellectual vitality during the last thirty years, and has displayed significant methodological advances. While research in this area has promised to transform sociological research to new ways of seeing, it has not transformed the disciplinary research focus as much as might have been expected. It is hoped that the future of social network analysis can be seated in its increasing dialogue with other sub-disciplinary areas of research so that the promise of this work can be more widely

realized throughout the field. The aforementioned Smith-Loving and McPherson HSD grant on Americans' social interaction demonstrates the intellectual power of network ideas, as do two other projects that were separately funded by Empirical Implications of Theoretical Models (EITM) and SGER.

> **Watts, Duncan**, Columbia University, *The Structure, Evolution and Function of Large-Scale Social Networks: Theory, Data and Experiment.* Jointly funded by the EITM emphasis area.
>
> **Beggs, John, Jeanne Hurlbert, Wesley Shrum, Valerie Haines, & Susan Dumais**, Louisiana State University, A&M, *Small Grant for Exploratory Research: Social Networks and Displacement After Hurricane Katrina,* jointly supported by the Division of Social and Economic Sciences (SGER)

And, second, the broad area of **Immigration/Migration/Globalization** is another substantive and theoretical focus we believe merits serious consideration for special investment in the near future both because of its centrality as a public concern, but also because it intersects directly with many facets of issues of American competitiveness. The Sociology Program has made major investments in immigration, migration and globalization during the last three years. Two jointly-funded workshops over the COV period focused on **Globalization**; one focused on *The Cultural Politics of Globalization and Community in East Central Europe*, and the other focused on *Understanding Global Tensions.*

Funded research projects in the area of **migration and immigration** focused on the US migration dynamics (for example, how migrant streams build upon themselves over time, how upward mobility or inequality gets passed on as descendants of migrants are incorporated, how ethnic communities form; and how entrepreneurship affects ethnic solidarity). In addition, other projects were funded describing and accounting for a new "third generation" stage of globalization in which multinational corporations move high-level knowledge employment to emerging economies. The research focused on the effects of this change on specific countries, especially for migration flows, changes in education capacity, and shifts in science and engineering work. Other projects explored the ways globalization affects a nation's internal socioeconomic structures and cultural institutions. Notably, about 25% of the projects in this part of the Sociology portfolio involve international research or have international implications, including studying migration in China and constructing databases to facilitate future studies. Notable examples of projects from this major investment include the following:

> **Babones, Salvatore**, University of Pittsburgh, *Globalization and the World Economy*.
>
> **Chase-Dunn, Christopher & Thomas Reifer**, University of California, Riverside, *The Social Foundations of Global Conflict and Cooperation: Waves of Globalization and Global Elite Integration Since 1840.*

Cohn, Samuel, Texas A&M University, *New Strategies for State Development Policy Under Globalization: Risk Reduction, Transnational Bargaining and Income Rationing in the Promotion of Employment in Northeast Brazil.*

Curran, Sara, University of Washington, & **Massey, Douglas**, Princeton University *Collaborative Research: Migration & Social Dynamics- Unpacking the Black Box of Cumulative Causation.*

Hao, Linxin, John Hopkins University, *Intra-Generational Mobility & Social Inequality: Does Immigration Play a Role?*

Kohn, Melvin, Johns Hopkins University, *Social Structure and Personality during the Transformation of Urban China*.

Portes, Alejandro, Princeton University & Rumbaut, Ruben, University of California, Irvine *Collaborative Research: The Second Generation in Early Adulthood: A Decade-Long Panel Study.*

Min, Pyong Gap, CUNY, Queens College, *The Effect of Immigrant Entrepreneurship on Ethnic Attachment and Ethnic Solidarity: Koreans, the Chinese, and Indians in New York.*

We anticipate that immigration/migration/globalization studies will become an increasingly important area of research in sociology, not only because the issues these projects address will only increase in importance for the domestic political, economic and cultural future, but also because of their role in shaping American competitiveness. The potential for transformative research exists here in our view, as new understandings of the ways social networks shape global economic and migratory outcomes emerge and reshape our understanding of our socioeconomic world. We believe encouraging the integration of network perspectives even more deeply into substantive studies of immigration/migration and globalization has great potential for producing transformative research our of NSF's Sociology Program investment.

The theoretical richness, methodological diversity and scientific quality of the result of NSF investments in the Sociology Program in recent years make clear how well positioned the sociological research community is presently to take advantage of new and potential cross-program research initiatives.

Take for instance, the American Competitiveness Initiative which aims to keep America's economy strong, encourage entrepreneurship, and position America to recruit future immigrant workers. Past investments in research on immigrants and immigrations processes has created intellectual capital that will allow sociological researchers to make important contributions to further our understanding of immigrant adaptation and immigration processes. So, too, do the diverse set of projects devoted to understanding work and the interdependency of work patterns and family life set the stage for moving

forward in addressing how present arrangements affect productivity and how new social policies might contribute to increased productivity and competitiveness.

The Outcome Goal for Research Infrastructure has been supported by numerous awards. These include the Academic Organization in American Higher Education and the Human Component of Social Change. The latter is part of the World Values Survey which contributes to international research. However, the Sociology Program's support of the major social science infrastructure programs are the most important indicators of its commitment to research infrastructure. These include the General Social Survey (GSS), the Panel Study of Income Dynamics (PSID), the American National Election Surveys (ANES), and the Time-sharing Experiments for the Social Sciences (TESS). These major infrastructure program can be adapted to meet the research needs of basic social science and policy research.

The Sociology Program is the primary funder of the GSS. The GSS has been conducted since 1972 and has been the major source of data for sociology and other social sciences. The GSS has been used to conduct research on such topics as religious behavior, social attitudes, and political behavior.

As a longitudinal study, the core questions have remained relatively stable. In recent years, modules have been added to address important societal questions such as issues related to mental health and stigma. A recent award to the GSS from DHS and NSF will be used develop a module on citizen preparedness for terrorist acts. As program and policy priorities change, the GSS has and will continue to be an important instrument for understanding US society.

The Sociology Program provides support to the Panel Study of Income Dynamics (PSID). This panel study has been conducted for almost 40 years. The PSID has tracked families and their changes in income and wealth which allows basic and applied researchers to understand family income and wealth changes over time. This project is important to understand social and economic stratification and mobility. Researchers have used the PSID to research other areas such as philanthropic giving. As with the GSS, the PSID is used to provide critical data and research on important emerging topics such as the recent award to conduct additional research on PSID families located in the states affected by Katrina.

While the program does not directly fund ANES and TESS, it has supported initiatives such as the collaboration with DHS, that broaden the uses of these databases. Sociologists have used the ANES and TESS to study important social science issues. The ANES is another long-term longitudinal study that is becoming more flexible in response to important emerging research and policy questions. TESS is a newer infrastructure vehicle that supports cutting-edge experiments designed to test hypotheses that are difficult to test using standard survey processes. Collectively, these infrastructure resources can be continue to be important resources for research. into major new initiatives that require intersection of science and policy. The Sociology Program has supported these infrastructure databases both through direct funding and through other awards.

PART C. OTHER TOPICS

C.1 Please comment on any program areas in need of improvement or gaps (if any) within program areas.

Throughout Part A, we made specific recommendations for improvements and enhancements to the Sociology Program.

C.2 Please provide comments as appropriate on the program's performance in meeting program-specific goals and objectives that are not covered by the above questions.

Throughout Part B, we described how the Sociology Program contributes to the NSF mission and national priorities.

C.3 Please identify agency-wide issues that should be addressed by NSF to help improve the program's performance.

NSF should give consideration to the potential contributions that the Sociology Program can make to major initiatives. For example, in Part B, we describe how sociological research can contribute to initiatives such as the ACI.

C.4 Please provide comments on any other issues the COV feels are relevant.

The Sociology Program has demonstrated that cooperation with other programs can lead to better awards and subsequently to better research. The Program Officers have also encouraged sociologists to participate in cross-program initiatives in which they have been very successful. These activities demonstrate the need for more opportunities for sociologists to obtain NSF research funding.

C.5 NSF would appreciate your comments on how to improve the COV review process, format and report template.

The process could be improved by networking the computers so that it easier to collaborate on the review drafts.

SIGNATURE BLOCK:

Vilna Bashi
John D. McCarthy
John M. Kennedy

_____

For the Sociology COV
Vilna Bashi
Chair

MEMORANDUM

To: David Lightfoot, Office of the Assistant Director, SBE

Via: Edward Hackett, Division Director, SES

From: Frank Scioli, Senior Science Advisor, SES

Subject: Demographics of the Division of Social and Economic Sciences (SES) COV

Attached you will find copies of all eight Committee of Visitors (COV) reports and the SBE Advisory Committee Chair's overview. Also attached is the Division's response to their recommendations. Here is relevant information about the composition of the entire COV and procedures to resolve conflicts.

The SES Division held its COV meetings in March 2007. Each report contains the list of members for that COV. The COV for all three of the division clusters had a total of 25 members, with the following demographic constitution:

Gender: 16 Male, 9 Female
Geographic Distribution: 9 Northeast, 4 Mid-Atlantic, 1 South, 7 Midwest, 3 West, 1 Foreign *Minority Representation:* 2 African-American, 2 Hispanic
Institutions: 15 Public, 10 Private
Teaching: 2 Undergraduate Institutions
Recent NSF Awardees: 11
Number With No NSF Support in Past Five Years: 12

In addition, a representative from the SBE Advisory Committee was present for each of the three COV cluster meetings and a fourth, Chair, was present; one was male; three were female. None were minority members; 3 were from private institutions and one from a public institution– two in the Northeast, one in the Midwest, and one in the West.

The introductory session included a conflicts briefing and review of confidentiality requirements. None attending had pending proposals at the SES programs being reviewed during the period of time they were appointed and completed their assignments for the COV. The procedure for random selection of declinations and awards to be reviewed set aside proposals on which COV members were principal investigators. The selection did include some proposals – awards and declinations - for which COV members were reviewers. These did not pose disqualifying conflicts of interest (COI). The selection did include some proposals that posed institutional COI for COV members; they did not review those proposals.