THE POLICY SCIENCES CENTER, INC.

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May 9, 2012

Dr. William Press, President and Board Members
AAAS
1200 New York Ave., NW
Washington, D.C. 20005

Ref: Letter of April 27, 2012

Dear Dr. Press and Colleagues:

Many of our hopes for a better future are linked to scientific progress. For this reason, AAAS should ask the courts to enjoin the National Science Foundation from using its Bush-era Merit Review system. The new system (created by the Bush-era National Science Board) shifted external, peer-review Scientific Merit rankings to "advisory only" status and sharply increases pressure on the NSF bureaucracy to make final decisions by a wide range of non-Scientific Merit criteria.

The Bruer-Leshner Task Force recently evaluated this new system: Its Report provides alarming data that NSF negligently failed to meet the minimal standards for legality and scientific legitimacy for ranking, and making competitive awards among, the 55,000 applications/year that it has been processing. NSF should have used clear definitions and scoring criteria that were applied consistently and reliably with a high level of inter-judge agreement. The criteria and scoring rules, and the NSF bureaucracy's weighting for its added points, should have been disclosed to all of the 55,000 applicants, in writing, in advance. Complete documentation, establishing fairness and accountability for these government awards, should have been kept. However, these standards were disregarded. The enclosed excerpt from the Report shows that 70%-80% of NSF officials and expert informants, when responding to an independent researcher and when given a guarantee of confidentiality, provide alarming evaluations and comments that would make it straightforward for a court to enjoin the government. A court should be asked to order restored funding (using the peer-reviewed Scientific Merit scores across the years of mismanagement) and to review the case (given fraudulent misrepresentations and misleading information provided to Congress and applicants) for awarding punitive and reparative damages.

Background

The Bush-era National Science Board quietly created a new hierarchical system that is described in the enclosed testimony of Dr. Cora Marrett, NSF's Deputy Director: ["[I]n contrast to a number of other funding bodies, the external reviewers do not make binding recommendations that the program officer is obliged to follow. . . "(p. 3)]. Her testimony also is worth reading for its *hubris* and the new managerial framework that assigns a superior NSF bureaucracy the authority - and increases pressure

on them - to decide their "portfolios" by Wider Benefit and many other criteria.[1] [2] Most scientists do not realize that the added scoring, final competitive rankings, and reasons for funding decisions are now protected by administrative secrecy and that NSF has written rules that these may not be disclosed to any of the 55,000 applicants.

- The Bruer-Leshner Report also indicates a new system of authoritarian management by the Bush-era National Science Board. They intend to place the nation's research scientists and institutions under duress. The nation's scientists can no longer disregard the National Science Board by counting upon an honest peer-review evaluation of Scientific Merit for protection. The threat of the Bush-era Board is that praiseworthy Scientific Merit research grants will be rejected, unless research scientists also are willing (as part of their grants) to comply and spend their time and federal research funds to do other things that the Bush-era National Science Board wants them to do. Apparently Leshner and his colleagues on the National Science Board are serious about compliance: one perception in the Report is that the new Wider Impact criteria - rather than having a symbolic or tiebreaker role - can secure a 40% bonus from some Program Officers.

- My purpose in this letter is to outline the case that a court will accept to issue an injunction. Many further issues also need to be addressed by the scientific community - hopefully in Science if conflicts inherent in Dr. Leshner's dual role as Executive Publisher and as a Member of the current, errant National Science Board can be resolved. [The authoritarian Bush-era National Science Board, chaired by a former President of Texas A&M (now in his second term) has made several remarkably poor decisions. For example, we can imagine the damaging effects on our national system of justice if jurors were told that their decisions were "advisory only."]

Deeper Breakdowns of NSF Integrity

Alan Leshner deserves praise for coauthoring a Task Force Report with methods that allow 70% - 80% of informants with inside knowledge to be whistleblowers. However there are deeper breakdowns of integrity, undiscussed by the Task Force, caused by a failure of political courage and candor, that have undermined NSF's culture and weakened our nation. In several program areas NSF began to abandon its scientific integrity in the 1980s by secretly accommodating to Republican demands to "defund the Left." Although the agency has sought to maintain a trusted public image, and credibility in the academic world, by giving the impression of integrity and that it operates by a peer review Scientific Merit evaluation, it is difficult to think, across three decades, of a single research project that NSF has funded in the social, behavioral, and economic sciences to pursue lines of thinking that would be socially unsettling or politically challenging (as seen by Republicans).

The history of this controversy-avoiding politicization includes dangerous decisions to destroy the scientific integrity of the NSF Economics program (and other social, behavioral and economics (SBE) programs, for which we also pay a continuing price).[3] The history also includes a stunning abuse of legal authority by making secret national policy decisions to change the civic role of universities while pretending to make Scientific Merit decisions and hiding behind NSF's reputation for scientific integrity. The dust cloud of virtuous intentions published by the Bush-era National Science Board notwithstanding, every exception to NSF's peer-reviewed Scientific Merit system has, beginning in the Reagan years, also been used as a loophole to derail rapid learning about important issues merely to

avoid partisan attacks by "don't anger us" Republicans.

Activating Reform

Alan Leshner is a social scientist: However, his Task Force did not test alternative causal theories as a basis for its policy recommendations. My perception is that 1.) The culture and management of NSF have slowly eroded under the weight of "folded lies" (Auden); it also may be true that 2.) The Bush-era National Science Board is, to a degree, at war with the NSF professional bureaucracy. These NSF professionals, who believe in scientific integrity and the Scientific Merit system, are unenthusiastic about implementing this new Merit Review system: they are waiting for the Bush-era Class of 2012 appointees to the NSB to begin to depart later this month. Another possible explanation is that: 3.) NSF professionals fear (correctly) being attacked by Republicans, by the nation's scientists, and from all other directions, if they let themselves be pushed forward to make any new, highly personal, judgments and re-rankings of 55,000 applications/year without clear and specific rules from the National Science Board. Or 4.) NSF Director Suresh and his senior management teams may be stunningly incompetent and negligent administrators . . . Until newer members of the National Science Board can evaluate alternative theories about what has gone so deeply wrong, they are not in a position to make national policy.[4] At this point, we do not know if NSF's culture can be restored.

We Can Do Better

We can do better. As a social scientist, I have observed the eroding NSF system for more than three decades; I also, as a specialist in the design of rapid learning systems, have been extraordinarily impressed by the high-level intelligence and inspired vision that eminent scientists and others have brought to the Institute of Medicine, to NIH, foundations, and other institutional actors to create new data systems and the new, rapid-learning national (soon, global) healthcare system. Today, at NSF I doubt that any single individual, even if they gave their word, could reform the system. At this point only a public legal challenge by a major institution can begin to turn this around.

Yours truly,

Lloyd Etheredge

Dr. Lloyd S. Etheredge, Director
Government Learning Project

cc: AAAS Section Chairs and Council Delegates

Enclosures:

Excerpts from the Bruer-Leshner Report: National Science Board, Merit Review Criteria: Review and Revisions (Washington, DC: National Science Foundation, 2011). NSB/MR-11-22.

Letter from Dr. Reischauer. December 23, 2002.

Letter from Donald Kennedy, Editor-in-Chief of Science, re the Hamburg-Lederberg meeting and the silence of Science re the destruction of the scientific integrity of Economics, August 8, 2004.

Ezra Klein, "Financial Crisis and Stimulus: Will This Time be Different?" The Washington Post, October 8, 2011.

Dr. Cora Marrett, "The Merit Review Process: Assuring Limited Federal Resources are Invested in the Best Science," Testimony to the House Committee on Science, Space, and Technology, June 26, 2011.

Notes

1. NSF documents sometimes refer to the "surprising continuity" of its evaluation system, but major changes in power were consolidated by the Bush-era changes. I am not aware of partisan accommodations and suppression of the social, behavioral, and economic sciences before the 1980s.

2. Dr. Marrett's testimony is stunning: It seems madness to suppose that people who have chosen bureaucratic careers and are managing - and rather badly! - the paperwork for 55,000 applications/year also are the best people to make the highest-level strategic leadership decisions for national science that the National Science Board has given them the authority to make.

3. The enclosed warning of scientific deficiencies was written by Robert Reischauer (former head of the Congressional Budget Office, an economist, and currently Senior Fellow - Chairman of the Board - of the Harvard Corporation) a decade ago. He is somebody to whose warning the NSF Director and National Science Board should have listened. Twenty years ago former AAAS President David Hamburg and the late Joshua Lederberg convened a high level meeting between senior statesmen and the Fast Track "Team Science" people in Washington who were cleverly compromising the integrity of Scientific Merit awards and our university-based research system to avoid controversy that might be generated by mindless Republicans. NSF is well- practiced at presenting an idealistic image and producing bureaucratic boilerplate on its Website and most of its official reports. However, from the standpoint of scientific integrity and the Hamburg-Lederberg meeting, NSF has been a rogue agency for more than twenty years.

4. Another theory is: 5.) NSF officials recognize that the combination of new authority and continued ambiguity allows them to aggrandize power, and do whatever they want to do, while allowing the nation's scientists to believe that they were treated fairly. This is a possible calculation that concerns me, for example, about the Assistant NSF Director at the SBE Directorate.

NSB/MR-11-22

National Science Foundation's Merit Review Criteria:

Review and Revisions

December 14, 2011

Members, NSB Task Force on Merit Review

- Dr. John T. Bruer, *Co-Chairman*
- Dr. Alan I. Leshner, *Co-Chairman*
- Dr. Louis J. Lanzerotti
- Dr. Douglas D. Randall
- Dr. Diane L. Souvaine
- Dr. Thomas N. Taylor
- Dr. Ray M. Bowen, *ex officio*
- Dr. Esin Gulari, *ex officio*
- Dr. Subra Suresh, *ex officio*
- Dr. Timothy Killeen, NSF Liaison Member
- Dr. Clifford Gabriel, NSF Liaison Member
- Dr. Joanne Tornow, Executive Secretary
- Ms. Kim Silverman, NSB Liaison

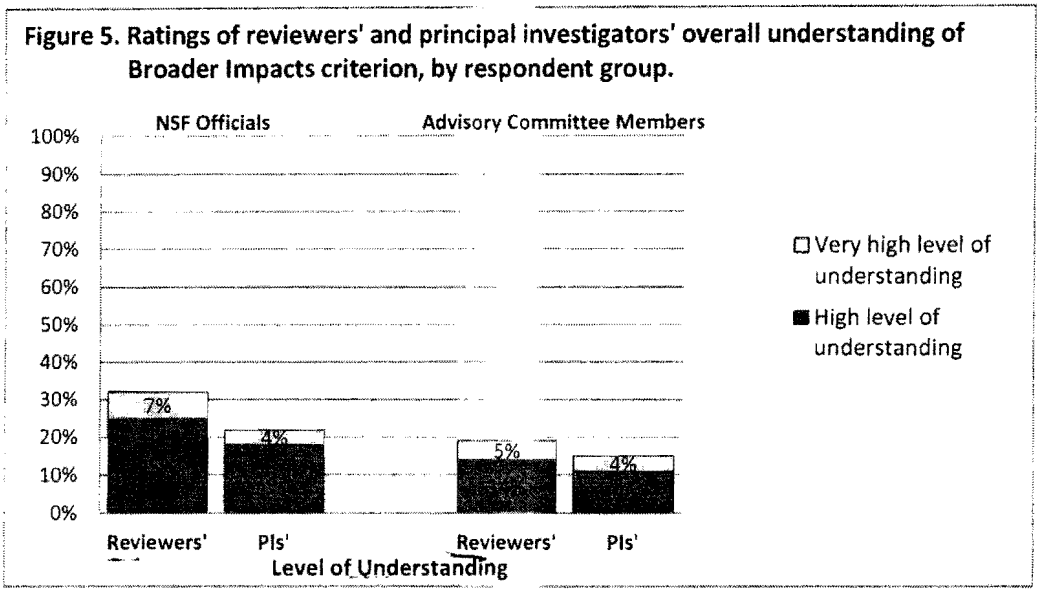


Figure 5. NSF Officials – N (Rev/PI)=382/381; Advisory Committee Members – N(Rev/PI)= 110/110. Questions wording: How would you rate the overall understanding of the Intellectual Merit and Broader Impacts criteria exhibited by members of the reviewer community during the past 2 year period? and How would you rate the overall understanding of the Intellectual Merit and Broader Impacts criteria exhibited by members of the PI community during the past 2 year period? Response scale: Very high level; High level; Moderate level; Low level; Very low level; No basis to judge (All response categories used in percentage calculations).

- The Broader Impacts criterion calls researchers' attention to the role of their work in society.
- The Broader Impacts [criterion] is wonderful in that it asks the question about what's the context in which the Intellectual Merit takes place, how do we strengthen the value of research?

The Broader Impacts criterion and/or expectations are not clear.

In nine interviews, leaders expressed the concern that the Broader Impacts criterion is vague, and that proposers and reviewers struggle to find a common understanding or evaluation metric. Leaders' statements included:

- The Broader Impacts criterion is interpreted very differently by the different communities. There is a higher bar in some communities than in others. If your research will affect other sciences, that's a broader impact in some communities. Often panelists don't pick up on the fact that this is a new principal investigator or a member of an underrepresented minority. Panelists don't understand that *that* is a part of Broader Impacts.
- The weakness of the Broader Impacts criterion is that it is mysterious to people; it is not understood by principal investigators, perspective principal investigators, or panelists.
- The criteria for deciding what is a good broader impact were never well defined – everyone has struggled with it. It is like a big fuzzy ball.
- [The vagueness of the Broader Impacts criterion] causes confusion because the community thinks that specific things need to be described for the criterion; reviewers and some program officers also think that.
- There is a general misconception it has only to do with education or of getting more women/minorities into STEM (Science, Technology, Engineering, and Mathematics) fields.
- Broader Impacts are seen as a "moving target" – there is frustration among principal investigators that they have to develop a Broader Impacts plan and they don't know how best to do that.

In three interviews where leaders raised concerns about the clarity of the Broader Impacts criterion guidance, leaders suggested that the lack of clarity can result in proposers viewing the potential considerations for the Broader Impacts criterion as a checklist. Their statements included:

- People get confused in that the areas for Broader Impacts are like a shopping list. Principal investigators wonder if they have to address all [potential considerations] on the list or just one or just some. Young faculty especially sees it as a checklist.
- If you look at the bullets [potential considerations] under the criteria, you see that they cover a wide range of topics. What happens is that principal investigators and sometimes program officers don't really know whether or not it is important to address all the bullets.
- There are many different ways to get broader impacts. There is some feeling in parts of the community that different pieces of Broader Impacts are more important than others, that you are supposed to deal with all of it, and if you don't deal with all considerations at a higher level, you're not doing the job.

There are ways the Broader Impacts criterion could be clarified.

In five interviews, officials made some suggestions for improving the Broader Impacts criterion, most related to clarifications and instructions, such as:

- Add "consistent with the scope of your project."
- Add examples specific to a program.

Testimony of

Dr. Cora Marrett, Deputy Director
National Science Foundation

Before the

U.S. House of Representatives
Committee on Science, Space, Technology
Subcommittee on Research and Science Education

The Merit Review Process:
Ensuring Limited Federal Resources are Invested in the Best Science

July 26, 2011

Chairman Brooks, Ranking Member Lipinski, and distinguished Members of the Subcommittee, thank you for inviting me to participate in this hearing on "The Merit Review Process."

I am delighted to discuss the National Science Foundation's (NSF) Merit Review Process with you. As you well know, NSF is the primary Federal agency supporting research at the frontiers of knowledge, across all fields of science and engineering (S&E) and all levels of S&E education. Its mission, vision and goals are designed to maintain and strengthen the vitality of the U.S. science and engineering enterprise. As part of the overall national R&D enterprise, the basic research and education activities supported by NSF are vital to the economic advancement of the U.S. and provide the know-how that allows the U.S. to respond rapidly and effectively to a range of unexpected challenges. The NSF merit review process lies at the heart of the agency's strategy for accomplishing its overall mission. As such, NSF is continuously striving to maintain and improve the quality and transparency of the process.

Before I begin my discussion of the unique elements of the NSF merit review system, let me first describe the essential features of merit review writ large. In general, merit review refers to an independent assessment of a plan's worthiness. The Code of Federal Regulations (Section 600.13 of title 10) defines Merit Review as a "thorough, consistent and objective examination of applications based on pre-established criteria by persons who are independent of those individuals submitting the applications and who are knowledgeable in the field of endeavor for which support is requested."

I would also like to note here that although the terms "merit review" and "peer review" are often used interchangeably, they are not equivalent terms. NSF made this distinction clear back in 1986, based on a report from an external Advisory Committee on Merit Review, established by then-director Erich Bloch at the request of the National Science Board. As is described by Marc Rothenberg, the NSF historian, in his 2010 article "Making Judgments about Grant Proposals: A Brief History of the Merit Review Criteria at the National Science Foundation:"

> "According to the committee, the term 'peer review' was properly a restrictive term referring to the evaluation of the technical aspect of the proposal. However, for more and more federally funded research, 'technical excellence' was, in the words of the committee, 'a necessary but not fully sufficient criterion for research funding.' Acknowledging that the NSF (as well as other federal agencies) was using a wide range of nontechnical criteria as part of the decision-making process, the committee suggested that the term 'merit review' more accurately described the NSF selection process."

The committee's recommendation was accepted by Director Bloch, and since then NSF has used the term "merit review" to describe our process.

Since its founding, NSF has relied on the merit review process to allocate the vast majority of its funding. As in other agencies, this has involved the use of proposals from prospective researchers that are judged on their merits by knowledgeable persons. But there are several elements that give merit review at the NSF its distinct features. For one, right from the beginning, NSF utilized the project grant mechanism (as opposed to a contract mechanism) for providing funds. This was a rather radical concept back in 1951, when most government operations used contracts. Since that time, the use of the grant mechanism has been adopted by many federal extramural research funding organizations.

NSF's process for deciding which proposals to fund differs from the approach of a number of other funding agencies and organizations (such as philanthropic foundations) nationally and internationally. Perhaps the most distinctive differences are our reliance on expertise from

both outside and within the Foundation, and the discretionary authority vested in the NSF program officer to make funding recommendations. Unlike many philanthropic foundations (and even some federal research funding programs), NSF policy requires that the program officers seek external expert advice before making most of their funding recommendations. However, in contrast to a number of other funding bodies, the external reviewers do not make binding recommendations that the program officer is obliged to follow, although program officers always pay close attention to all external reviews. Because of the responsibility we give our program officers, NSF sets a high standard for excellence in that position. Our program officers are subject matter experts in the scientific areas that they manage, and bring strong credentials with them, including advanced educational training (e.g., a Ph.D. or equivalent credentials) in science or engineering, and deep experience in research, education, and/or administration.

NSF has chosen to give the program officer the responsibility for making funding recommendations to enable a more strategic and long-term approach for building the award portfolio. As important as the input of the external scientific experts is, they have only a snapshot view of the current set of proposals they are evaluating. The NSF program officer is responsible for putting that snapshot view into the larger context of the entire award portfolio they are managing, which can lead to a more diverse and robust portfolio overall. Together with the division directors, who have the authority to review and act on the program officers' recommendations, program officer teams are poised to identify promising research that responds to national priorities identified by Congress and the Administration. In addition, program officers can incorporate agency or programmatic priorities, which are articulated in the annual agency budget, special solicitations, and standing program descriptions, all of which are available to the community via the NSF web site.

The NSF merit review process is described in full detail on the NSF web site (http://www.nsf.gov/bfa/dias/policy/meritreview/). There is also a summary of the major steps in the merit review process in the annual Report to the National Science Board on the Merit Review Process (the most recent report covering activities in FY 2010 can be found at http://www.nsf.gov/nsb/publications/2011/nsb1141.pdf). It is worth noting here that the key features of the NSF process have remained remarkably stable over time. Any changes that have been incorporated have sought primarily to clarify the process and make it more transparent. For example, initially only excerpts of the external reviews were shared with the proposal authors. Over time, NSF provided the verbatim reviews (but not the identities of the reviewers) to the applicant. Similarly, over time there have been modifications to the number and clarity of the review criteria. In the America COMPETES Reauthorization Act, the broader impacts criterion is specifically mentioned, and the National Science Board is in the process of analyzing the many comments received on this topic.

A flowchart that graphically depicts the major steps in the merit review process and a timeline is attached to this testimony as Appendix I. These steps include:

- *Assignment to the appropriate program for review.* Principal investigators initiate this process by selecting the program or programs to which they wish to submit their proposal. Once submitted, the cognizant program officers for those programs confirm that the assignment is appropriate. On occasion, a proposal may be reassigned to another program where there is a better fit. During this initial assignment process, it is not uncommon for proposals to be assigned to multiple programs for review, if the subject is interdisciplinary in nature, or if the question is of interest and relevance to more than one program.

- *Administrative review of all proposals for compliance with NSF regulations.* These regulations, which are intended to ensure fairness in the review process, are described in the Grant Proposal Guide, which is widely available to the NSF community on the NSF web site (http://www.nsf.gov/pubs/policydocs/pappguide/nsf11001/nsf11_1.pdf). Proposals that do not comply with these regulations may be returned without review.

- *Merit review of all proposals that pass the administrative review.* As noted above, a critical feature of NSF's process is the use of both external review by experts in the field and internal review by NSF's corps of program officers. The program officers are responsible for administering the merit review process from beginning to end, starting with identifying and recruiting appropriate peer reviewers from the external community to serve either as individual reviewers for a particular proposal (referred to as "ad hoc" reviewers) or as members of a panel of reviewers who evaluate a larger set of proposals. To ensure that they receive substantive reviews from a variety of perspectives, the program officers reach out to a broad range of experts for input—in fiscal year 2010, over 46,000 external peer reviewers from academia, government, and occasionally industry provided authoritative advice to the Foundation. Selection of expert peer reviewers may be based on the program officer's knowledge, references listed in the proposal, individuals cited in recent publications or relevant journals, presentations at professional meetings, reviewer recommendations, bibliographic and citation databases, or suggestions from the proposal author (subject to the program officer's discretion). In making these selections, program officers pay very careful attention to avoiding conflicts of interest, both real and perceived.

  NSF takes seriously its responsibility to ensure that the merit review process is fair and equitable. One of the ways in which we address this responsibility is through the briefings that are given to each review panel before it begins its work. In these

briefings, panelists are instructed on NSF's review criteria (Intellectual Merit and Broader Impacts), and on maintaining confidentiality and avoiding conflicts of interest. In addition, review panel briefings typically include alerting the reviewers to the phenomenon of implicit bias, which may adversely impact new investigators, smaller institutions, and underrepresented groups. By guarding against the effects of implicit bias in the review process, NSF is working to ensure that there are equitable opportunities for all investigators.

I should note here that while the vast majority of the proposals received at NSF (~96%) are subject to both external and internal merit review, for some proposals the external review requirement is waived. This waiver provides necessary flexibility for handling proposals for which most of the external community would be conflicted (such as proposals for small conferences, workshops, or symposia), those for which there is a severe urgency (submitted through the Grants for Rapid Response Research, or RAPID, mechanism used, for example, on rapid-response research to the Deepwater Horizon oil spill), and those that request support for high-risk, potentially transformative exploratory work (submitted through the Early Grants for Exploratory Research, or EAGER, mechanism). These proposals are usually only reviewed internally by program officers with appropriate expertise.

- *Development of funding recommendations.* A central tenet of the NSF merit review process is that the reviewer input is advisory in nature. Funding recommendations are developed by the program officer, who is responsible for synthesizing the advice of the reviewers along with several other factors, with the goal of allocating funding to a diverse portfolio of projects that addresses a variety of considerations and objectives. In addition to their scientific expertise noted above, NSF program officers bring their own unique perspective born from their experience of working with hundreds, thousands, or – in some cases – tens of thousands of proposals. In developing recommendations within the larger context of their overall portfolio, program officers consider carefully the individual merits of each proposal with respect to both its intellectual merit and the potential broader impacts of the project, and how each proposal might help advance a variety of portfolio goals such as:
    - Achieving special program objectives and initiatives;
    - Fostering novel approaches to significant research and education questions;
    - Building capacity in a new and promising research area;
    - Supporting high-risk proposals with potential for transformative advances;
    - Supporting NSF's core strategies of integration of research and education and integrating diversity into NSF's programs;
    - Potential impact on human resources and infrastructure;

- Other available funding sources; and
- Geographic distribution.

NSF has set a goal for completing this process within six months, from the time the proposal is submitted to the point at which the proposal is either declined or recommended for funding and forwarded to the Division of Grants and Agreements for the final stages of review and processing. The proposal assignment and administrative review stage is typically complete within a few weeks. The bulk of the time is spent in the merit review stage, which can take three to four months to complete. Despite the volume of proposals that NSF receives annually (in FY 2010, over 55,000 proposals were submitted, an increase of 23% over the previous year), NSF routinely processes the majority of these proposals (>75%) in fewer than six months.

To ensure the integrity of the process, all program officer recommendations are reviewed by the division director (or other appropriate NSF official), who examines whether the process used to arrive at the decision has been executed in accordance with NSF's policies and that the decision has been based on a thorough analysis of the merits of the proposal. Large awards may receive additional review, either by the Director's Review Board (DRB) or additionally by the National Science Board (NSB). The DRB examines award recommendations with an average annual award amount of 2.5 percent or more of the awarding division's prior year current plan. The NSB reviews recommended awards with an annual award amount of one percent or more of the awarding Directorate's or Office's prior year current plan, or less than one percent or more of the prior year total NSF budget at the enacted level. Once the funding recommendation is approved (at whatever level is appropriate), the Division of Grants and Agreements ensures that the award recommendation meets all of NSF's requirements before officially issuing the award.

In addition to having multiple layers of review of individual award recommendations, NSF requires that all programs undergo an external review by Committees of Visitors (COVs) every three years. COV reviews provide NSF with external expert assessments of the quality and integrity of program operations and program-level technical and managerial matters pertaining to the merit review and final proposal decisions. Finally, retrospective analysis of the process is periodically performed on a Foundation-wide basis, including the statistical reports submitted to the NSB every year and the Impact of Proposal and Award Management Mechanisms (IPAMM) report of 2007 (http://www.nsf.gov/pubs/2007/nsf0745/nsf0745.pdf).

At the request of Congress, in 2005 the NSB undertook an examination of NSF's Merit Review Process (http://www.nsf.gov/nsb/documents/2005/nsb05119.pdf). The report concludes that:

> "The Board fully supports the current NSF system of merit review, which utilizes the peer review process as the principal driver in funding decisions. The Board also strongly

> endorses the role of NSF program officers' discretionary authority, in concurrence with division directors, for ensuring the implementation and goals of both Merit Review Criteria, along with achieving a balanced portfolio of research and education awards, both within directorates and across the suite of NSF programs. Unlike a system based solely on peer reviews' scores, NSF's merit review process incorporates peer review in a system that also considers those attributes of a proposal (risk, multidisciplinary nature, novelty) that are not readily accommodated by a numerical score, but essential to identifying the most innovative proposals."

The National Academy of Sciences, in the 1994 report "Major Award Decisionmaking at the National Science Foundation," stated that, "The United States has built the most successful research system in the world. The use of peer review to identify the best ideas for support has been a major ingredient in this success. Peer review-based procedures such as those in use at NSF, the National Institutes of Health, and other federal research agencies remain the best procedures known for ensuring the technical excellence of research projects that receive public support." In November 2009, the Executive Director of the Transportation Research Board at the National Research Council, provided testimony before Congress on how to facilitate the implementation of research at the Department of Transportation. In that testimony, the Director endorsed strongly the fact that NSF's merit review process is well suited to the mission of the agency. His observation: "The more applied mitigation and adaptation research topics should be steered by the concerns and needs of policy makers and practitioners, while the fundamental research topics should be organized along the NSF model in which scholars and experts are guiding the decisions about which projects are likely to be most promising."

NSF's merit review process has served the agency, the scientific community, and indeed the country well for many years. Many Nobel Laureates, National Medal of Science and Technology winners, and MacArthur Foundation Fellows (popularly known as recipients of Genius Grants) have been supported by NSF at various stages in their careers. Through separate programs and in the course of funding specific scientific progress, over the past 25 years NSF has also supported the training of hundreds of thousands of graduate and post-graduate scholars in STEM fields. Discoveries stemming from NSF-funded projects have led to advances across all areas of science, engineering and education, with far-reaching impacts in the fields of nanotechnology, information technology, environmental science, genomics, STEM education, and many others.

The high quality of NSF's merit review process is recognized globally, as evidenced by the fact that it has been used as a model by countries around the world that are newly establishing their own funding agencies. The merit review system for L'Agence Nationale de la Recherche (ANR), the French counterpart to NSF, is explicitly modeled after NSF, as is that of the Foundation for

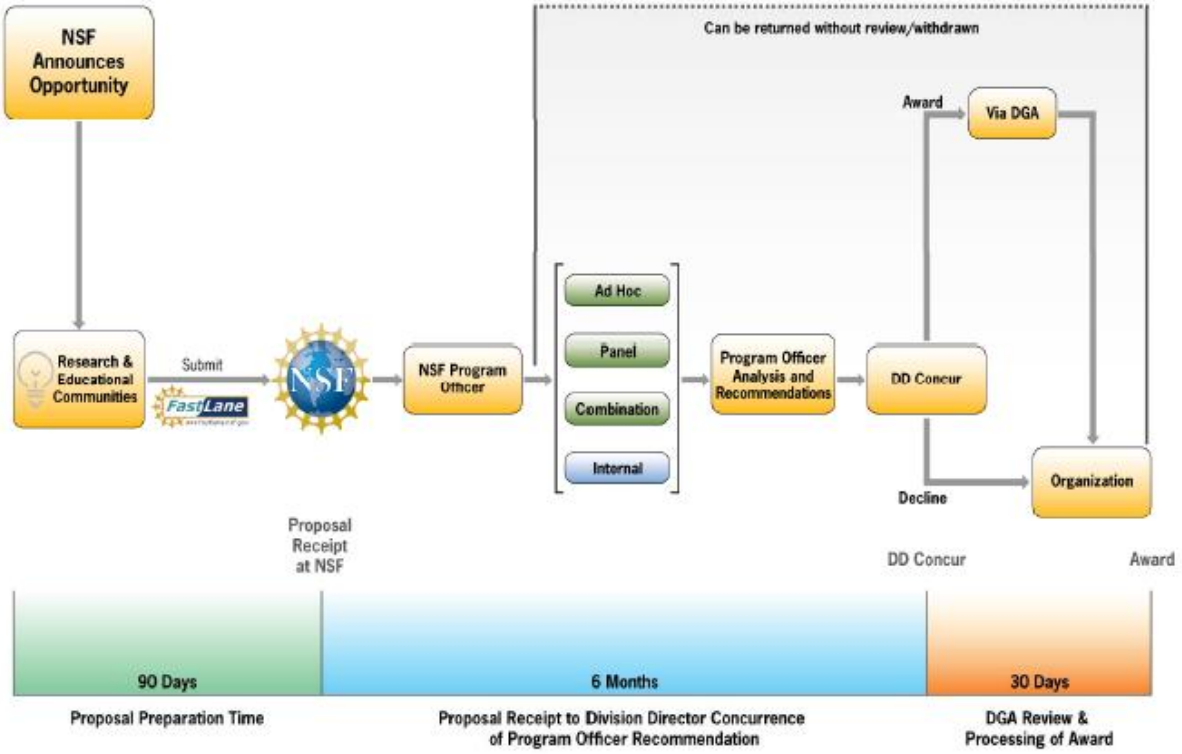
Polish Science. NSF helped the European Research Council establish its merit review system some five years ago, and was instrumental in helping Ireland establish Science Foundation Ireland. Back in 1986, a Chinese official came to NSF for 6 months to learn about our merit review and decision making processes, and subsequently incorporated what he had learned in establishing the National Natural Science Foundation of China (NSF-C). These are just a few examples of international agencies where NSF has had an explicit role in helping develop their merit review systems, but there are literally dozens of others that have borrowed our approach over the years.

As the nature of research and the scientific enterprise continues to change – becoming more interdisciplinary, technological, international and collaborative – NSF continues to explore ideas and strategies that could strengthen the merit review process by enlarging the range of tools that can be used in proposal evaluation. These ideas have come from a variety of sources – internally, from the research community, from the practices of other funding agencies, and from the scientific literature on merit review. One idea that we are actively exploring is a greater use of technology-mediated virtual panels when and where it makes sense, with the hope that decreasing the travel burden will expand the potential pool of reviewers. Among the benefits that NSF would derive from an expanded pool of reviewers are the inclusion of more and varied perspectives, increased opportunities for participation by underrepresented groups, decreased review burden per individual reviewer, and decreased travel costs for the agency. We have established an internal working group to identify other viable candidates for pilot activities, and to develop plans for running and evaluating those pilot activities. We will be discussing these with an advisory committee over the next few months to get their help in refining the processes.

For over 60 years NSF has been forward looking in terms of how the agency manages its research and education portfolio. Merit review fosters the "process of discovery," the means by which researchers can identify emerging scientific challenges and innovative approaches for addressing them. NSF is dedicated to ensuring that the merit review process remains robust, rigorous, and beyond reproach, in support of our mission and enabling us to pursue our goal of funding the world's best research in science, engineering and education.

I appreciate the opportunity to appear before the Subcommittee to speak to you on this important topic. I would be pleased to answer any questions that you may have.

Appendix I: NSF Proposal and Award Process and Timeline



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ROBERT D. REISCHAUER
President

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December 23, 2002

Dr. Lloyd S. Etheredge, Director
Government Learning Project
The Policy Sciences Center, Inc.
P. O. Box 208215
New Haven, CT 06520-8215

Dear Dr. Etheredge:

Thank you for your letter and thoughtful attachment. I am in complete agreement that the economic data we collect has significant deficiencies that limit our ability to understand the economy's problems and chart future policy.

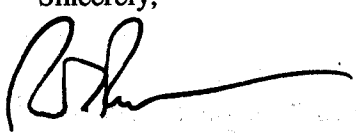
We don't collect some information that is needed and gather much that we could do without. We collect other data in insufficient detail and almost always take too long to release the data for it to be useful in policy decisions.

As you know better than I, there are many reasons for this situation. What we collect and how we collect it reflects the forces at play in the first half of the last century and those forces do not want to give anything up. Congress has little interest in devoting more scarce budget resources to collect new and better information. Few economists who use the data appreciate its limitations. They have been raised on certain data sets and treat them as if they are part of the underlying environment, not subject to change. They put a premium on continuity and don't want discontinuity in the data sets they know and use.

I don't think I would be as critical as you are about CNSTAT/NCR. I don't think they would have much of an impact even if they had done the studies and made the recommendations you think warranted. Nor do I think universities (Yale or Harvard) or the Fed could make much of a dent in the problem. Rather, I think a presidential or congressional study commission is called for—one with a clear mandate and a promise that added resources will be devoted to strengthening the statistical system based on the commission's report. Unfortunately, the prospects for such an initiative rising to the top of policymakers' lists of things to do is very, very low.

Nevertheless, I wish you well in your efforts.

Sincerely,



Science
AAAS

August 4, 2006

Dr. Lloyd Etheredge, Director
Government Learning Project
The Policy Sciences Center, Inc.
127 Wall Street, Room 232
P.O. Box 208215
New Haven, CT 06520-8215

Dear Dr. Etheredge,

Thanks for your letter of July 11 and for several ~~editions~~ e-mails that have followed. I've known for some time, both because of my service on Dave Hamburg's Commission and because you've written me from time to time, of your concern about the social, behavioral, and economic sciences at NSF and at the Academies. I don't think this is an area in which the AAAS, through its elected Board of Directors is likely to take a position. On the other hand, the News department at *Science* is always interested in issues relating to how the scientific community is served is being treated by government or by other entities. I'm forwarding a copy of your letter to Colin Norman, the news director, so that his staff can be made aware of this concern.

With best regards,

Sincerely yours,

Donald Kennedy
Editor-in-Chief

DK/jw

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Published by the American Association for the Advancement of Science

Financial crisis and stimulus: Could this time be different?

By Ezra Klein, Published: October 8, 2011. The Washington Post.

Christina Romer had been asked to scare her new boss. It was six weeks after the 2008 election, and the incoming administration had gathered in Chicago. David Axelrod, Barack Obama's top political adviser, couldn't have been more clear in his instructions to Romer: The president-elect needed to know how bad the economy was going to get. No pulling punches, no softening the news.

So Romer, the preternaturally cheerful economist whose expertise on the Great Depression made her a natural choice to head the incoming president's Council of Economic Advisers, worked up some numbers to show how quickly the economy was deteriorating and what would happen if the federal government wasn't able to mount an effective response.

It was not a pleasant presentation to sit through. The situation was grim. Afterward, Austan Goolsbee, Obama's friend from Chicago and Romer's successor, remarked that "that must be the worst briefing any president-elect has ever had."

But Romer wasn't trying to be alarmist. Her numbers were based, at least in part, on everybody else's numbers: There were models from forecasting firms such as Macroeconomic Advisers and Moody's Analytics. There were preliminary data pouring in from the Bureau of Labor Statistics, the Bureau of Economic Analysis and the Federal Reserve. Romer's predictions were more pessimistic than the consensus, but not by much.

By that point, the shape of the crisis was clear: The housing bubble had burst, and it was taking the banks that held the loans, and the households that did the borrowing, down with it. Romer estimated that the damage would be about $2 trillion over the next two years and recommended a $1.2 trillion stimulus plan. The political team balked at that price tag, but with the support of Larry Summers, the former Treasury secretary who would soon lead the National Economic Council, she persuaded the administration to support an $800 billion plan.

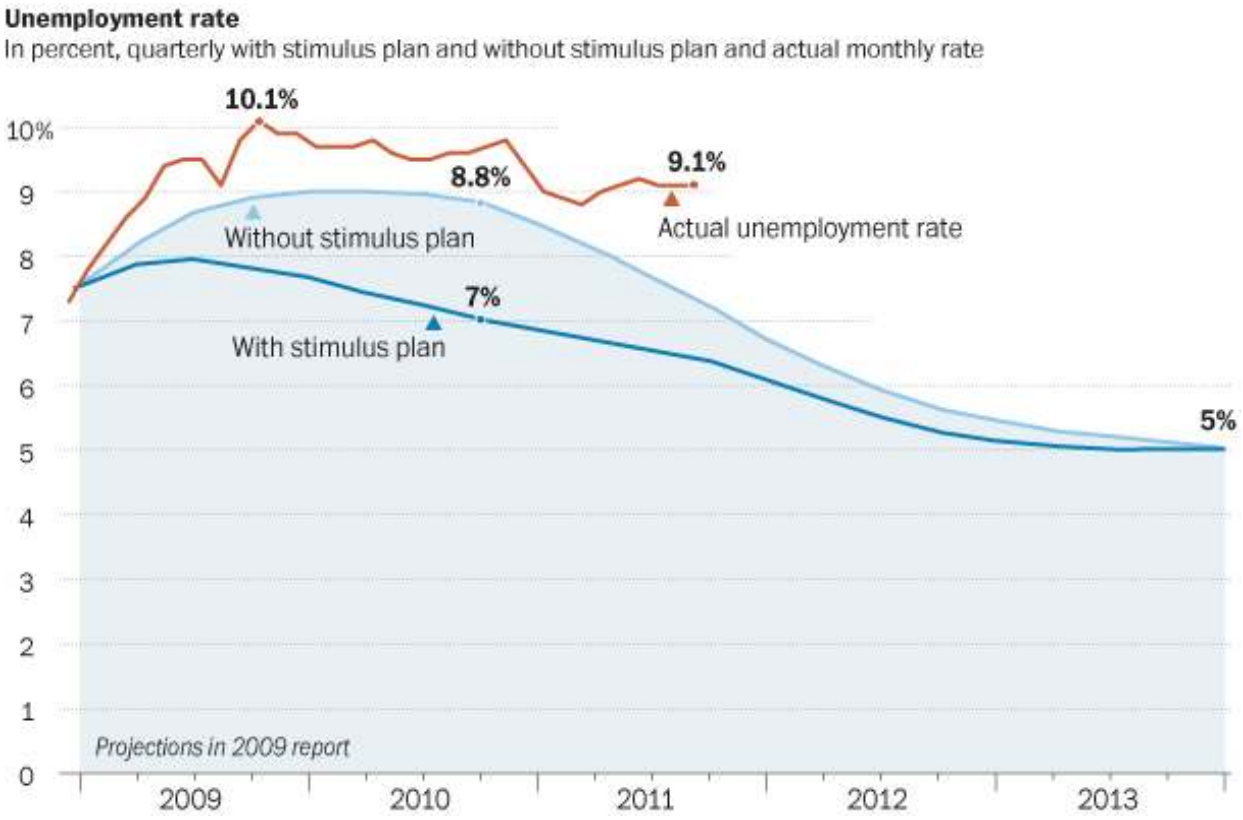
The next challenge was to persuade Congress. There had never been a stimulus that big, and there hadn't been many financial crises this severe. So how to estimate precisely what a dollar of infrastructure spending or small-business relief would do when let loose into the economy under these unusual conditions? Romer was asked to calculate how many jobs a stimulus might create. Jared Bernstein, a labor economist who would be working out of Vice President Biden's office, was assigned to join the effort.

Romer and Bernstein gathered data from the Federal Reserve, from Mark Zandi at Moody's, from anywhere they could think of. The incoming administration loved their report and wanted to release it publicly. Romer took it home over Christmas to double-check, rewrite and pick over. At 6 a.m. Jan. 10, just days before Obama would be sworn in as president, his transition team lifted the embargo on "The Job Impact of the American Recovery and Reinvestment Act." It was a smash hit.

"It will be a joy to argue policy with an administration that provides comprehensible, honest reports," enthused columnist Paul Krugman in the New York Times.

There was only one problem: It was wrong.

The issue is the graph on Page 1. It shows two blue lines sloping gently upward and then drifting back down. The darker line — "With recovery plan" — forecasts unemployment peaking at 8 percent in 2009 and falling back below 7 percent in late 2010.



Three years later, with the economy still in tatters, that line has formed the core of the case against the Obama administration's economic policies. That line lets Republicans talk about "the failed stimulus." That line that has discredited the White House's economic policy.

But the other line — "Without recovery plan" — is more instructive. It shows unemployment peaking at 9 percent in 2010 and falling below 7 percent by the end of this year. That's the line the administration used to scare Congress into passing the single largest economic recovery package in American history. That line is the nightmare scenario.

And yet this is the cold, hard fact of the past three years: The reality has been worse than the administration's nightmare scenario. Even with the stimulus, unemployment shot past 10 percent in 2009.

To understand how the administration got it so wrong, we need to look at the data it was looking at.

The Bureau of Economic Analysis, the agency charged with measuring the size and growth of the U.S. economy, initially projected that the economy shrank at an annual rate of 3.8 percent in the last quarter of 2008. Months later, the bureau almost doubled that estimate, saying the number was 6.2 percent. Then it was revised to 6.3 percent. But it wasn't until this year that the actual number was revealed: 8.9 percent. That makes it one of the worst quarters in American history. Bernstein and Romer knew in 2008 that the economy had sustained a tough blow; t hey didn't know that it had been run over by a truck.

There were certainly economists who argued that the recession was going to be worse than the forecasts. Nobel laureates Krugman and Joe Stiglitz were among the most vocal, but they were by no means alone. In December 2008, Bernstein, who had been named Biden's chief economist, told the Times, "We'll be lucky if the unemployment rate is below double digits by the end of next year."

The Cassandras who look, in retrospect, the most prophetic are Carmen Reinhart and Ken Rogoff. In 2008, the two economists were about to publish "This Time Is Different," their fantastically well-timed study of nine centuries of financial crises. In their view, the administration wasn't being just a bit optimistic. It was being wildly, tragically optimistic.

That was the dark joke of the book's title. Everyone always thinks this time will be different: The bubble won't burst because this time, tulips won't lose their value, or housing is a unique

asset, or sophisticated derivatives really do eliminate risk. Once it bursts, they think their economy will quickly clamber out of the ditch because their workers are smarter and tougher, and their policymakers are wiser and more experienced. But it almost never does.

In March 2009, Reinhart and Rogoff took to Newsweek to critique the "chirpy forecasts coming from policymakers around the globe." The historical record, they said, showed that "the recessions that follow in the wake of big financial crises tend to last far longer than normal downturns, and to cause considerably more damage. If the United States follows the norm of recent crises, as it has until now, output may take four years to return to its pre-crisis level. Unemployment will continue to rise for three more years, reaching 11 to 12 percent in 2011."

It seems unlikely that unemployment will return to 11 percent this year, but if the global economy tips back into recession, anything is possible. Either way, Rogoff and Reinhart were a lot closer to the mark than most forecasters.

But the administration insisted on optimism. There was talk of "green shoots" and the "recovery summer." Events in Greece and in oil markets were chalked up to bad luck rather than the predictable aftershocks of a financial crisis. The promised recovery was always just around the corner, but it never quite came. Eventually, the American people stopped listening. A September poll showed that 50 percent of Americans thought Obama's policies had hurt the economy.

"I don't think it's too much of an exaggeration to say that everything follows from missing the call on Reinhart-Rogoff, and I include myself in that category," says Peter Orszag, who led the Office of Management and Budget before leaving the administration to work at Citigroup. "I didn't realize we were in a Reinhart-Rogoff situation until 2010."

This time, it turned out, wasn't different. But could it have been?

The boot and the slog

The basic thesis of "This Time Is Different" is that financial crises are not like normal recessions. Typically, a recession results from high interest rates or fluctuations in the business cycle, and it corrects itself relatively quickly: Either the Federal Reserve lowers rates, or consumers get back to spending, or both.

But financial crises tend to include a substantial amount of private debt. When the market turns, this "overhang" of debt acts as a boot on the throat of the recovery. People don't take advantage of low interest rates to buy a new house because their first order of business is paying down credit

cards and keeping up on the mortgage.

In subsequent research with her husband, Vincent Reinhart, Carmen Reinhart looked at the recoveries following 15 post-World War II financial crises. The results were ugly. Forget the catch-up growth of 4 or 5 percent that so many anticipated. Average growth rates were a full percentage point lower in the decade after the crisis than in the one before.

Perhaps as a result, in 10 of the 15 crises studied, unemployment simply never — and the Reinharts don't mean "never in the years we studied," they mean never ever — returned to its pre-crisis lows. In 90 percent of the cases in which housing-price data were available, prices were lower 10 years after the crash than they were the year before it.

There is no doubt that the post-crisis trajectory looks more like the slog Reinhart and Rogoff described than the relatively rapid rebound predicted by the administration and many forecasters. Yet even among economists who admire Reinhart and Rogoff's work, there is skepticism.

One source comes in how Reinhart and Rogoff find the economic phenomena they're trying to study. "There's an identification problem," Stiglitz says. "When you have underlying problems that are deep, they will cause a financial crisis, and the crisis itself is a symptom of underlying problems."

Another is in their fatalism. "I don't buy their critique in the sense that this was an inevitability," says Dean Baker, director of the Center for Economic and Policy Research and one of the economists who spotted the housing crisis early.

The Obama administration didn't buy the idea of inevitability, either. The team crafted a multi-pronged approach of stimulus spending, programs to address the housing market, and policy coordinated with an activist Federal Reserve. It firmly believed that it was better to do too much than too little. Its credo was well expressed by Romer at that December meeting, when she told the president, "We have to hit this with everything we've got." But in reality, the administration could only hit it with everything it could persuade Congress to give. And that wasn't enough.

Finding fault with the stimulus

Some partisans offer a simple explanation for the depth and severity of the recession: It's the stimulus's fault. If we had done nothing, they say, unemployment would never have reached 10 percent.

That notion doesn't find much support even among Republican economists. Doug Holtz-Eakin is president of the right-leaning American Action Forum and served as Sen. John McCain's top economic adviser during the 2008 presidential campaign. He's no fan of the stimulus, but he has no patience with the idea that it made matters worse.

"The argument that the stimulus had zero impact and we shouldn't have done it is intellectually dishonest or wrong," he says. "If you throw a trillion dollars at the economy, it has an impact. I would have preferred to do it differently, but they needed to do something."

A fairer assessment of the stimulus is that it did much more than its detractors admit, but much less than its advocates promised.

"The thing that people who want to argue that the stimulus failed have to deal with," Bernstein says, "is that if you look at the trajectory of job losses, you will find that right on the heels of the Recovery Act, the rate of job losses began to diminish and then the jobs numbers turned positive. The Recovery Act worked. The problem is we didn't keep our foot on the accelerator."

That's not the sort of success the president had promised, though. He said the stimulus would "jolt our economy back to life." In Denver, the site of the 2008 Democratic National Convention, he said that although "this was not the end of our economic problems," it was "the beginning of the end."

It wasn't.

Critics and defenders on the left make the same point: The stimulus was too small. The administration underestimated the size of the recession, so it follows that any policy to combat it would be too small. On top of that, it had to get that policy through Congress. So it went with $800 billion — what Romer thought the economy could get away with — rather than $1.2 trillion — what she thought it needed. Then the Senate watered the policy down to about $700 billion. Compare that with the $2.5 trillion hole we now know we needed to fill.

But it is hard to credit the argument that the stimulus could have been much larger at the outset. This was already the biggest stimulus in U.S. history, and congressional leaders had been quite clear with the White House: Don't send over anything that passes the trillion--dollar mark. To try and double the bill's size based on a suspicion that the recession was much worse than the early data indicated would have been a hard sell, to say the least.

Even if Congress had been more accommodating, there was a challenge to vastly increasing the size of the initial stimulus: The more you spend, the less effective each new dollar would become.

“We were trying to spend 10 times what had ever been spent in a year,” says Goolsbee, who chaired the Council of Economic Advisers until this year. “The tension was that the biggest bang for the buck comes from direct spending like infrastructure, but once you use up the big-ticket items, you eventually come to a point where the tax cuts are better bang for the buck than the 300 billionth infrastructure dollar.” And tax cuts, frankly, aren’t a very good bang for the buck.

But although the administration’s team hoped the initial stimulus would work, it figured that if it didn’t, it could go back to Congress for more.

“If you’re at the barber and they don’t cut your hair short enough, you can always ask them to go a little further,” Bernstein says. “That’s sort of how I thought about stimulus policy. I don’t think we could have done more in February of 2009 based on political and implementation constraints. But I probably didn’t recognize how hard it would be to go back to the barbershop.”

The theory was that success would beget success. Passing the stimulus would stabilize the economy, prove the White House’s political mettle and deliver immediate relief to millions of Americans. That would help the administration build the political capital to pass more stimulus, if necessary. But when the economy failed to respond as predicted, the political theory fell apart, too.

“The biggest problem we had in terms of the loss of political capital is we came in and did a bunch of stuff, and things got worse,” says Ron Klain, who served as chief of staff to Biden. “And some of that was just bad luck. If we didn’t have the 22nd Amendment and Barack Obama became president in late March rather than in late January, things would have been much worse when we came in than they were. And then the Recovery Act would have come not in February, but in May. We would already have hit bottom, and it would seem like things were getting better.”

This has led to a what-if that torments the White House’s political team: What if it hadn’t taken on so much? The administration rushed from the second bucket of bailout funds to the stimulus to the auto-industry rescue to health care to climate change legislation to financial regulation. In a world where the economy was steadily recovering, Obama might have amassed a record

comparable to Franklin Roosevelt's. But as the situation slowly deteriorated, the American people turned against the administration's crush of initiatives. The frenetic pace made the White House seem inattentive and unfocused amid a mounting crisis.

But the alternative is similarly difficult to imagine. No one believes that significantly reining in the agenda would have led to much more stimulus. Perhaps the president would have benefited politically from speaking more about jobs and less about health care, but then again, he had historic majorities in both houses of Congress and had come into office promising dramatic change.

A more accurate understanding of the recession could, however, have led to a somewhat different stimulus — and perhaps a more durable political strategy. The policy was constructed at breakneck speed, with the emphasis on getting money spent fast. That led to more tax cuts, as they could happen quickly, and less infrastructure, as projects — particularly anything more complex than road repair — can take years to begin, by which point a typical recession has ended of its own volition.

Another cost of moving quickly was that it put a premium on policies already floating around that could be easily dropped into the legislation. That, according to Holtz-Eakin, solidified Republican opposition.

"If you're a staffer and you have been watching business in the House and Senate for a long time," he says, "what you saw them doing was pulling old ideas off the shelf — old ideas you had fought and that Democrats had abandoned. So Republicans in Congress just hated it."

A stimulus conducted with the Rogoff-Reinhart lessons in mind might have been broken into pieces and spread over a longer time frame. The administration could have pushed to tie key components such as unemployment benefits, state and local aid, and tax cuts to the unemployment rate rather than setting them to expire after two years. With the knowledge that it had years of low growth to combat, there could have been a short-term infrastructure component — potholes, school repairs and the like — followed, in separate legislation that Congress would have had more time to consider, by a long-term infrastructure component for big investments such as high-speed rail and health-information technology.

But there's little reason to believe that would have turned unemployment numbers around. In fact, we have seen fairly regular extensions of unemployment benefits and tax cuts over the past year. A bill with a longer time frame perhaps would have saved the administration from political

headaches down the road, but it could have even made it harder to ask Congress for more, as the initial policy would not have finished spending out yet.

‘Politics on housing are hideous’

The stimulus was a bet that we could get out of this recession through the one path everyone can agree on: growth. The bet was pretty much all-in, and it failed. Reinhart and Rogoff are not particularly surprised. It's hard to get through a debt-driven crisis without doing anything about, well, debt.

In our crisis, the “debt” in question is housing debt. Home prices have fallen almost 33 percent since the beginning of the crisis. All together, the nation's housing stock is worth $8 trillion less than it was in 2006. And we're not done. Morgan Stanley estimates there are more than 2.2 million homes sitting vacant, and 7.5 million more facing foreclosure. It is housing debt that has weakened the banks, and mortgage debt that is keeping consumers from spending.

In late 2008, when the economy was cratering, Holtz-Eakin convinced McCain that the way out of a housing crisis was to tackle housing debt directly. “What we proposed at the time was to buy up the troubled mortgages, pay them off and let people refinance at the lower rates,” he recalls. “That would have filled up the negative equity and healed bank balance sheets.”

To this day, Holtz-Eakin thinks the proposal made sense. There was one problem. “No one liked that plan,” he says. “In fact, they hated it. The politics on housing are hideous.”

The Obama administration, perhaps cognizant of the politics, was not nearly so bold. It focused on stimulus rather than housing debt. The idea was that if people could keep their jobs and pay their bills, they could pay their mortgages. But today, few on the Obama team will mount much of a defense of its housing policy.

Its efforts to heal the troubled market at the core of the financial crisis are widely considered weak and ineffective. The Home Affordable Modification Program, which proposed to pay mortgage servicers to renegotiate with financially stressed homeowners, couldn't persuade the servicers to play ball and so has left most of its $75 billion unspent. The Home Affordable Refinance Program was projected to help 5 million underwater homeowners. It has reached fewer than 1 million.

Even so, the administration rejects the more radical solutions that are occasionally floated. The problem, it says, is that the choices are mostly between timid and unworkable.

One problem was that mortgage finance giants Fannie Mae and Freddie Mac were ultimately controlled by the independent Federal Housing Finance Agency. Created by Congress in 2008, the agency was initially led by a Bush administration appointee, James B. Lockhart III, and when he stepped down, by another Bush administration appointee, Edward DeMarco. The Obama administration's November 2010 effort to nominate its own director was foiled by Senate Republicans.

By that time, the administration had been in office for almost two years and seen the Democrats' 60-vote majority in the Senate come and go. If it had moved more quickly to appoint a director when it had firmer control of the Senate, it could perhaps have used Fannie and Freddie to kick off a giant wave of refinancing for underwater homeowners. That alone would have done something to ease the pressure on stressed households.

But when talking about what might have worked on a massive, economy-wide scale — that is to say, what might have made this time different — you're talking about something more drastic. You're talking about getting rid of the debt. To do that, somebody has to pay it, or somebody has to take the loss on it.

The most politically appealing plans are the ones that force the banks to eat the debt, or at least appear to do so. "Cramdown," in which judges simply reduce the principal owed by underwater homeowners, works this way. But any plan that leads to massive debt forgiveness would blow a massive hole in the banks. The worry would move from "What do we do about all this housing debt?" to "What do we do about all these failing banks?" And we know what we do about failing banks amid a recession: We bail them out to keep the credit markets from freezing up. There was no appetite for a second Lehman Brothers in late 2009.

Which means that the ultimate question was how much housing debt the American taxpayer was willing to shoulder. Whether that debt came in the form of nationalizing the banks and taking the bad assets off their books — a policy the administration estimated could cost taxpayers a trillion dollars — or simply paying off the debt directly was more of a political question than an economic one. And it wasn't a political question anyone really knew how to answer.

On first blush, there are few groups more sympathetic than underwater homeowners or foreclosed families. They remain so until about two seconds after their neighbors are asked to pay their mortgages. Recall that Rick Santelli's famous CNBC rant wasn't about big government or high taxes or creeping socialism. It was about a modest program the White House was

proposing to help certain homeowners restructure their mortgages. It had Santelli screaming bloody murder.

“This is America!” he shouted from the trading floor at the Chicago Board of Trade. “How many of you people want to pay for your neighbor's mortgage that has an extra bathroom and can't pay their bills? Raise their hand.” The traders around him began booing loudly. “President Obama, are you listening?”

If you believe Santelli's rant kicked off the tea party, then that's what the tea party was originally about: forgiving housing debt.

Ultimately, concerns about the politics and policy questions behind widespread debt forgiveness were sufficient to scare the administration off of the policy. It's a decision some ex-members of the White House regret.

“If we had thought harder about Rogoff and Reinhart, we might have made some different trade-offs regarding debt reduction,” Bernstein says. “Moral hazard is a big problem when you're making policy regarding write-offs and principal cramdowns. It was always in the room when you were trying to help one underwater homeowner write off some debt while the person next door was playing by the rules and paying their mortgage every month. But with hindsight, I might have argued more rigorously against the risk of it.”

The Fed’s inflation option

There was, however, one institution that some think could have reduced the debt overhang crushing the economy and that didn't face such political obstacles: the Federal Reserve.

The central bank manages the nation's money supply and credit and sits at the center of its financial system. Usually, it spends its time guarding against the threat of inflation. But in December 2008, Rogoff argued that the moment called for the reverse strategy.

“It is time for the world's major central banks to acknowledge that a sudden burst of moderate inflation would be extremely helpful in unwinding today's epic debt morass,” he wrote.

Inflation — the rate at which prices for goods go up and buying power goes down — makes any amount of money worth less over time. It can help a depressed economy in three ways: It erodes the real value of debt. It gives people an incentive to spend and invest now, as their money will not go as far later. And it tends to drive down the value of the dollar against other currencies,

making U.S. exporters more competitive.

At the Federal Reserve, inflation is a four-letter word. It has spent the past few decades convincing the market that it can and will "anchor" inflation at about 2 percent. Lifting that anchor could cause problems down the road, without doing much good in the present. After all, Federal Reserve Board Chairman Ben S. Bernanke doesn't have a red inflation button beneath a glass case on his desk. Creating inflation is difficult when demand for goods is low, and it's not even clear that the Fed can do it.

Rogoff scoffs at this. "Creating inflation is not rocket science," he wrote. "All central banks need to do is to keep printing money to buy up government debt. The main risk is that inflation could overshoot, landing at 20 or 30 percent instead of 5 or 6 percent. Indeed, fear of overshooting paralyzed the Bank of Japan for a decade. But this problem is easily negotiated. With good communication policy, inflation expectations can be contained, and inflation can be brought down as quickly as necessary."

But the policymakers who would have needed to create that inflation aren't so sure. "It's difficult, if not impossible, to create persistent inflation without demand exceeding potential supply over an extended period," says Donald L. Kohn, who served as vice chairman of the Federal Reserve Board until 2010. "Yes, changing expectations might push inflation higher, but why would expectations change materially and persistently under current circumstances?"

Bernanke seems to agree. So, it seems, does the administration, at least judging by the economists it considered nominating to the Fed.

Summers, who had the inside track to chair the central bank if the Obama administration decided against renominating Bernanke, echoes Kohn's skepticism. "In the model I understand," he says, "inflation is mostly driven by demand, and when you increase demand, you increase inflation. And if you don't increase demand, you don't increase inflation. But if you've solved demand, you've solved your problem."

Nobel laureate Peter Diamond, whom the Obama administration nominated to fill a vacant seat on the Fed's board, puts it this way: "If the Fed says we are determined to keep going till we have, say, 4 percent inflation, would that really turn around expectations in a way that would stimulate the economy and create higher inflation? I doubt it."

And, of course, the Fed might be insulated from politics, but it's not immune to it. In recent

years, Rep. Ron Paul (R-Tex.) has gained national prominence in part on an “End the Fed” platform. Texas Gov. Rick Perry, a Republican presidential contender, has threatened to do something “ugly” to Bernanke. Congress passed legislation to audit the Fed. Even noted monetary economist Sarah Palin weighed in, saying, “It’s time for Ben Bernanke to cease and desist.”

To the Fed, the nightmare scenario is that it tries to create inflation now and fails. It would have given up its hard-won credibility as an inflation fighter and invited political backlash, all without helping the economy.

Labor market’s long period of pain

Growth-focused and debt-focused strategies are attempts to end the recession. They’re policy on the offensive. But perhaps the real lesson from Rogoff and Reinhart is that these recessions rarely end quickly, and so officials must manage a long period of pain — defensive policy, so to speak. America doesn’t do defense very well.

“We’re trying right now to keep our lifestyles going,” says Michael Spence, a Nobel Prize-winning economist at New York University. “It’s not really working, but the way we’re doing it is putting all the burden on the unemployed while trying to leave the employed untouched. Eventually, this is going to require a redistribution of that burden.”

In other countries, he says, the burden is more widely shared. The employed work less — and get paid less — so there are more jobs to go around. That leads to a little pain for a lot of people, rather than a lot of pain for fewer people. It also keeps more workers on the job, which means their skills don’t deteriorate and the economy isn’t left with people who became unemployed and then found themselves unemployable.

That’s what we’ve seen here: Employers have become so leery of hiring the unemployed that the Obama administration has proposed to make it illegal to discriminate against them. Such a policy is easier said than done, but it speaks to the downside of letting workers fall out of the labor force for long periods of time.

Germany’s response to the recession included a work-sharing program that subsidized salaries when employers trimmed the hours of individual workers to keep more people on the job. If workers attended job training, the government gave a more generous subsidy.

The program worked. Even though Germany’s economy was devastated by the recession —

declining by almost 7 percent — the jobless rate fell slightly, from 7.9 percent at the start of the recession to 7 percent in May 2010.

There are reasons to question whether work-sharing programs would have been as effective here as they were in Germany. For one thing, they work best in sectors where jobs are bound to return after a recession — such as Germany's export sector — rather than sectors that need to be downsized after being inflated by a credit boom.

Germany also has a different labor market. Employers, unions and the government work together with an unusual level of cooperation. The culture is much more hostile toward layoffs than the United States' is, which has caused Germany problems in the past but has been a boon throughout this recession.

But paying the private sector to save jobs was not the administration's only option. There was also the possibility of simply paying workers to work.

For one thing, the government could have refused to fire anyone. Says Baker, of the Center for Economic and Policy Research: "We've lost 500,000 state and local jobs, and before that, we were creating 160,000 a year. If we hadn't had those losses and had done more to keep creation at that pace, we would have almost another million jobs."

It also could have started hiring. Romer, for instance, proposed to add 100,000 teacher's aides. Imagine similar proposals: Every park ranger could have had an assistant park ranger. Every firefighter station could have added three trainees. Every city could have expanded its police force by 5 percent. Everyone between ages 18 and 26 could have signed up for two years of paid national service.

In a relatively quick recovery, these programs wouldn't have made sense. Better to support the economy more generally and let workers migrate from unproductive sectors to productive ones. Employing workers directly is, at best, a stopgap, and at worst, a waste of the government's resources and the worker's time. The government doesn't know where workers are best used. That's better left to the market.

But in a long slog of a recession, that logic falls apart. Workers don't move into more productive sectors of the economy. They lose their jobs, and then they lose their paychecks, homes and, eventually, skills. That sucks demand out of the economy, further depresses home prices and makes it harder for the labor market to recover.

Call-and-response conundrum

So could this time have been different? There's little doubt that it could have been better. From the outset, the policies were too small for the recession the administration and economists thought we faced. They were much too small for the recession we actually faced. More and better stimulus, more aggressive interventions in the housing market, more aggressive policy from the Fed, and more attention to preventing layoffs and hiring the unemployed could have led to millions more jobs. At least in theory.

Of course, ideas always sound better than policies. Policies must be implemented, and they have unintended consequences and unforeseen flaws. In the best of circumstances, the policymaking process is imperfect. But January 2009 had the worst of circumstances — a once-in-a-lifetime economic emergency during a presidential transition.

Reinhart, for one, thinks the Bush and Obama administrations don't get sufficient credit for all they did.

"The initial policy of monetary and fiscal stimulus really made a huge difference," she says. "I would tattoo that on my forehead. The output decline we had was peanuts compared to the output decline we would otherwise have had in a crisis like this. That isn't fully appreciated."

In that way, Reinhart says, this time really was different — at least from the Great Depression, when output shrank by 30 percent and a quarter of the workforce was unemployed. "If the choice was this or the '30s," she says, "I'd take this hands down."

Give policymakers some credit: They really have learned from the Depression. So did the Japanese. In the 1990s, they pumped monetary and fiscal stimulus into their economy, too, and they didn't suffer a depression. But they never found themselves in a recovery. They stagnated for a decade, and then for another.

What we're in looks more like Japan in the '90s than the United States in the '30s. Reinhart doesn't think that's an accident; she thinks it's a product of the initial successes. "The same policies that serve you well in limiting the output collapse do not serve you well in speeding the time it takes to get out," she says.

By saving the banking system, you end up with banks that are quietly holding on to toxic assets in the hope that one day they'll be worth something. By limiting the output gap, you keep the economy from getting so bad that truly radical solutions, such as wiping out hundreds of billions

of dollars of housing debt, become thinkable. You limp along.

The question, of course, is why do governments limp out of recessions when the weight of history tells them to run?

“Now knowing how much worse the storm was, people look back and say, you guys undershot,” sighs Treasury Secretary Timothy F. Geithner. “But we didn’t think we were undershooting at the time. We thought that the dominant strategy had to be massive, overwhelming force. There were political limits to what we could do, but we thought we were operating to expand the scope of those limits. I used to say to people, ‘Which mistake is harder to correct: doing too much, or doing too little?’ ”

Yet the Obama administration did too little. Its team of interventionist Keynesians immersed in the lessons of the Depression and Japan did too little. Everyone does too little, even when they think they’re erring on the side of doing too much. That’s one reason “this time” is almost never different.

The tendency thus far has been to look at these crises in terms of the identifiable economic factors that make them different from typical recessions. But perhaps the better approach is to look at the political factors that make them turn out the same, that stop governments from doing enough even when they have sworn to err on the side of doing too much.

These crises have a sort of immune system. It is never possible for the political system to do enough to stop them at the outset, as it is never quite clear how bad they are. Even if it were, the system is ill-equipped to take action at that scale. The actors comfort themselves with the thought that if they need to do more, they can do it later. And, for now, the fact that this is the largest rescue package anyone has ever seen has to be worth something.

Perversely, the very size of the package is part of its problem. With something extraordinary that is nevertheless not enough, the economy deteriorates, and the government sees its solutions discredited and its political standing weakened by the worsening economic storm. That keeps it from doing more.

Meanwhile, the opposition’s capacity to do more is arguably even more limited, as it has turned against whatever policies were tried in the first place. Add in the almost inevitable run-up in government debt, which imposes constraints in the eyes of the voters and, in some cases, in the eyes of the markets, and an economy that started by not doing enough is never able to get in

front of the crisis.

These sorts of economic crises are, in other words, inherently politically destabilizing, and that makes a sufficient response, at least in a democracy, nearly impossible.

There's some evidence for this internationally. Larry Bartels, a political scientist at Vanderbilt University, examined 31 elections that took place after the 2008 financial crisis and found that "voters consistently punished incumbent governments for bad economic conditions, with little apparent regard for the ideology of the government or global economic conditions at the time of the election." Just look to Europe, where the path to ending the debt crisis and saving the euro zone — the group of nations that use the currency — is clear to most economists but impossible for any European politician.

That isn't to say that this time couldn't have been different or that next time won't be. But it is no accident that these crises so often turn out the same, in so many countries, with so many types of governments, who have tried so many kinds of responses.

In general, the policies that are vastly better than whatever you are doing are not politically achievable, and the policies that are politically achievable are not vastly better. There were many paths that could have been taken in January 2009, and any one would have made this time a bit different. But not different enough. Not as different as we wish.

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