

Is There Gender Bias in Federal Grant Programs?

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While implementation of Title IX began by focusing on ensuring equal opportunities for women in college sports, it prohibits gender discrimination in any U.S. educational activity, including in the distribution of federal research and development funding. In fiscal year (FY) 2001 alone, the federal government provided almost \$43 billion for basic and applied research.

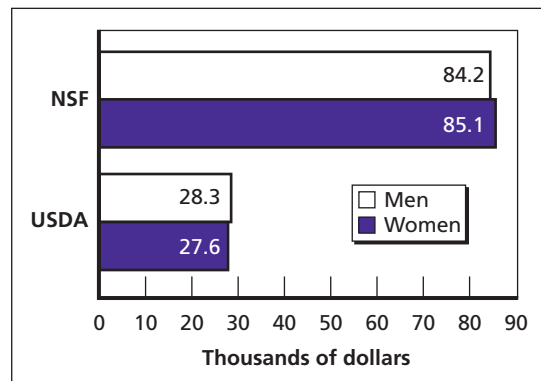
Responding to a request from the National Science Foundation (NSF) to satisfy a congressional directive to assess gender differences in such funding, RAND Corporation researchers analyzed three years of data from three federal agencies—the NSF, the National Institutes of Health (NIH), and the Department of Agriculture (USDA)—that accounted for three-fifths of the \$43 billion in research funding in FY 2001. That analysis was supplemented by using data from two researcher surveys—the 1999 National Survey of Postsecondary Faculty (NSOPF) and the 2001 Survey of Doctoral Recipients (SDR)—that provide a more limited view of research funding from all federal agencies. Other agencies that provide large amounts of grant funding—Defense, Energy, and the National Aeronautics and Space Administration—were not included because of serious data limitations.

Overall, *we did not find gender differences in federal grant funding outcomes in this study.* There were no differences in the amount of funding requested or awarded at NSF (from FY 2001 to FY 2003) and USDA (from FY 2000 to FY 2002), as shown in Figure 1. We found the same result when we looked at the surveys. We discovered differences in the raw 1999 NSOPF survey results, but they disappeared when we adjusted for other characteristics, including the researcher’s discipline, institution, experience, and past research output. But there were two exceptions, which we discuss below.

Abstract

Based on analysis of three federal agency databases and two researcher surveys, we did not find gender differences in federal grant funding outcomes, with two exceptions. First, we found a gender gap in the amount of funding on average that females receive relative to their male counterparts at NIH, although important caveats are associated with that finding. Second, we found a gender gap in subsequent application rates. Suggestions for future data gathering and analysis are discussed.

Figure 1
Mean Funding Awarded by Gender
(Controlling for Other Characteristics)



Gender Gap in Funding Received at NIH

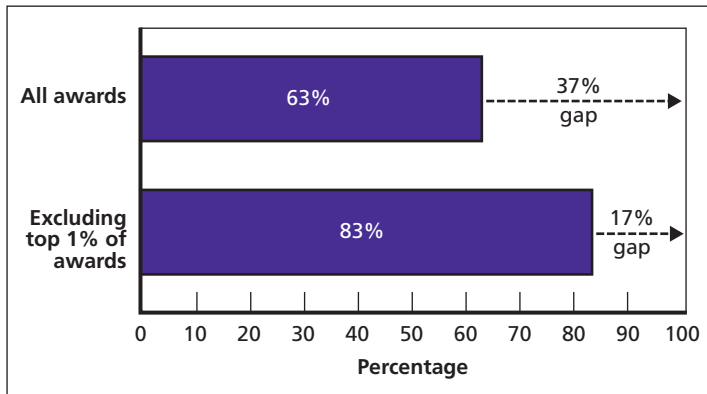
The first major exception was at NIH (Figure 2), where we saw a gender difference in the amount of funding female recipients received relative to their male counterparts. As shown in the top bar, female applicants in FY 2001–2003 received on average only 63 percent of the funding that male appli-

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Figure 2
Percentage of Funding Received on Average by Women from NIH Relative to Men (FY 2001–2003)



cants received (a gender gap of 37 percent). Women were under-represented among the top 1 percent of award winners at NIH, receiving only 13 percent of these multimillion dollar awards. For all other awards, the gender difference was 17 percent, which means women received only 83 percent of what men received when it came to grant funding. This figure controls for other characteristics: age, academic degree, institution, grant type, institute, and application year.

But there are several caveats. First, NIH does not retain information about co-investigators, information likely to be especially important in measuring gender differences because a number of NIH awards fund larger research teams where the bulk of the research will be done by others. Second, some important covariates are unavailable in the NIH data. Finally, the NIH data set did not include the amount of funding requested, which means we cannot determine whether the gender differences reflect applicant decisions about how much to request, agency decisions about how much to award, or both. If these covariates affect the funding of NIH awards as they do at NSF, the gender gap could be smaller.

Gender Gap in Subsequent Application

We also found gender differences in application rates. At NSF and NIH, women who applied in 2001 were less likely to submit another application in the next two years. The difference was much larger at NIH (more than 20 percent) than at NSF (5 percent). At both agencies, this disparity applied to both successful and unsuccessful applicants in the first year. At USDA, there may be a small gender gap among those who were successful in the initial year but not among those who were rejected.

We hypothesize that repeat application rates may reflect underlying gender differences in application propensity, consistent with what a study similar to ours found in Britain. But absent a more direct measure of application behavior, we cannot confirm this. If women are in fact less likely to apply for funding, female and male applicants for federal research grants likely differ in ways not observed in the data sets used for this study, especially at NIH, where the application difference was sizable. If application behavior data were collected, methods could be used to correct for these unobserved differences and further our understanding of gender differences in grant funding.

Future Directions

Our understanding of gender differences in federal research funding is incomplete. Those interested in how women are represented in the federally funded research community may want to focus first on how they are represented in the applicant pool and on their decisions to apply for grants. Women accounted for 21–28 percent of applicants to NSF, NIH, and USDA in recent years and for 25 percent of the survey subsamples of university and medical school researchers we analyzed. This is similar to women’s representation in the population of doctoral recipients working in science and engineering. Our study showed again that female researchers follow somewhat different career paths than male researchers do. In particular, women grant applicants are less likely to be employed in the major research universities, where most research grants are awarded.

A companion study to ours, which is being conducted at the National Academy of Sciences, will provide more information on career paths of scientists and engineers but not on grant application behavior. Future research on women in science and engineering should address application.

Finally, we note many limitations in the information collected in federal agencies’ grant application and award data systems. Better tracking of gender differences in such funding would be accomplished if all agencies awarding significant grant funding:

- Maintain a centralized data system that stores the amount requested and awarded for each proposal, and any score assigned to it by the peer reviewers.
- Include in the data system key characteristics for each investigator and co-investigator, including gender, race/ethnicity, type of institution, type of academic appointment for investigators in postsecondary education, discipline, degree, and year of degree. ■

This research brief describes work done for RAND Infrastructure, Safety, and Environment and documented in *Gender Differences in Major Federal External Grant Programs*, by Susan D. Hosek, Amy G. Cox, Bonnie Ghosh-Dastidar, Aaron Kofner, Nishal Ramphal, Jon Scott, and Sandra H. Berry, TR-307-NSF (available at <http://www.rand.org/publications/TR/TR307>), 2005, 96 pp., \$20.00, ISBN: 0-8330-3854-0. TR-307 is also available from RAND Distribution Services (phone: 310.451.7002; toll free: 877.584.8642; or email: order@rand.org). The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND’s publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark.



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