

Postdoctoral training and gender differences in academic scientists' research productivity

Abstract

The productivity puzzle that female scientists publish less than their male peers remains incompletely revealed. While much has been done on examining both the institutional and individual factors to determine their potential influences on research productivity, one ladder to an academic career has been largely ignored: postdoctoral training. The past four decades have witnessed the rapid expansion in the number of science and engineering (S&E) doctoral recipients heading for postdoctoral training. As a matter of fact, in some fields such as biology, postdoctoral training has even been a mandatory requirement for the appointment of a faculty position.

The central research question of the proposed study is whether postdoctoral training, as an intervening factor/mechanism, has a significant role in explaining the differential research productivity between male and female academic scientists? More specifically, the study attempts to answer the following questions: across the gender groups, are individuals who had postdoctoral training more productive than those who did not have? Taking gender into account, is male faculty more likely to have postdoctoral training than female faculty? If yes, can the difference in productivity between genders be partially attribute to the more postdoctoral training received by male faculty? Or the difference is due to differential effect the postdoctoral training has on male faculty from it does on female faculty? And further, from a long-run perspective, as more and more women are getting their postdoctoral training, does the gender gap in productivity shrink?

The data for this study is drawn from "Research Value Mapping Program's Survey of Academic Scientists". The survey targeted at a population of tenure-track/tenured scientists and engineers working at research extensive universities. From 13 science and engineering fields defined by National Science Foundation, 200 female and male scientists were randomly selected from each field to compile the sample and then a survey was delivered to them. The survey generated 1647 valid questionnaire responses. Among the survey respondents, 1106 scientists' Curriculum Vitae (CV) were collected. By combining both datasets, we propose to undertake a systematic evaluation to answer the questions raised earlier.

Preliminary findings suggest that female scientists publish less than their male counterparts, and the biggest gap occurs in the first five years after their completion of PhD training. Postdoc appointment increases individual research productivity, but more so for male scientists than female. It seems that postdoc training, as one more academic career ladder, has not been a level field for female scientists over time. The results suggest that policies and practices supporting postdoctoral programs with the assumption that such programs would improve women's performance in S&E have to be reconsidered. More systematic analyses and results would provide empirical evidence and a guideline for the reconsideration.