

base as on interoccupational dynamics. And finally, despite Zetka's theoretical sophistication, the book is very readable and would be suitable for use in undergraduate as well as graduate courses.

Women in Science: Career Processes and Outcomes.

By Yu Xie and Kimberlee A. Shauman. Harvard University, 2003. 318 pp. Cloth, \$59.95.

Reviewer: ANGELA M. O'RAND, *Duke University*

The trend toward equality of educational and occupational attainment between women and men in the U.S. continues. However, buried beneath the aggregate statistics are what Yu Xie and Kimberlee Shauman refer to as "stubborn exceptions," particularly persistent gender inequalities in doctoral degrees in mathematics and some of the sciences and in the maintenance of scientific careers after the Ph.D. in these fields. By 2000 women accounted for nearly half of doctorates across academic fields; and while their representation in some sciences approximated this average (e.g., biology and biochemistry), their representation persisted as among the lowest in some engineering fields, physics, and mathematics. Across the sciences, women's career persistence and mobility after the degree fall well below their doctoral attainment levels.

The explanations for these persistent trends have eluded previous researchers, who have resorted to an intuitive metaphor — *the leaking science pipeline*. The pipeline metaphor is predicated on the assumption that the scientific career begins in middle and secondary school science and mathematics classes and persists in a necessary sequence of educational career transitions beginning with intentions to major in math/science in college and followed in order by majoring and graduating in math/science, attending graduate school, receiving the masters and Ph.D., attaining postdoctoral placements, and progressing through formal academic careers as scientist/professor. The leaking pipeline portrays the cumulative loss of women along the way without specifying the mechanisms that propel the loss.

Xie and Shauman offer a set of empirically derived explanations for this attrition and findings that contradict the pipeline metaphor. They do so by following a life course perspective and using rigorous multivariate demographic methods on microdata from multiple (17) longitudinal and census sources to predict gender differences. The life course perspective proposes that life transitions are interdependent across education, family, and work domains and that later transitions are contingent on (but not determined by) earlier transitions. Hence, the science pipeline does not operate in a social vacuum. To track this multidimensional and dynamic process, Xie and Shaumann concatenate a set

of limited longitudinal datasets that permit the construction of synthetic cohorts that can be followed from middle school to postdegree career years.

They begin in the middle- and secondary school years by using 6 datasets to compare gender patterns of mathematical and science performance (National Longitudinal Study of the Class of 72; High School and Beyond Senior and Sophomore Cohorts, respectively; National Educational Longitudinal Study of 1988; and the Longitudinal Studies of American Youth, cohorts 1 and 2). In chapter 2, they find that gender differences in mathematical ability are minimal except at the upper extreme of the distribution, but that male students participate more in scientific curricula. In chapter 3, they find large gender differences among high school seniors in expectations to major in science and engineering in college, by a ratio of 2 males to 1 female. However, in chapter 4 they find that after entering college women are more likely than men to enter a science and engineering major after starting a nonscience major.

Chapters 5 and 6 track post-B.A. and M.A. degree career paths (using the Baccalaureate and Beyond Longitudinal Study and the New Entrants Surveys). Here, as life course theory would predict, things get more complicated. First, while women are more likely to major in some biological sciences, the majors in these fields are less likely overall than other science majors (e.g. engineering and physics) to pursue science and engineering careers. And, controlling for major, women are 25% as likely to work in science and engineering careers. Finally, all else equal, married women, and those with children, are less likely to continue science and engineering careers. Hence, gender segregation by major (biology versus engineering/physics) and familial roles hinder women's career progression.

Chapters 7-10 employ microdata from the census (PUMS 1960-90) and five other datasets to examine four post-degree career patterns: employment, geographic mobility, research productivity, and the status of immigrant scientists and engineers. These analyses find an increase in female participation in science and engineering careers over time, but continual disadvantage in employment and positional status for married women and those with children. This disadvantage also negatively affects geographic mobility in the early career, although dual-career marriages appear to have no effect on women's geographic mobility. The most disadvantaged in employment and positional status are married foreign-born women scientists.

Earlier literature based on limited cross-sectional samples and (largely) bivariate analyses has repeatedly raised concerns over the productivity puzzle, the seemingly persistent lower research productivity of women scientists. The cohort-based multivariate results in this study challenge the productivity puzzle. Research differences in productivity are negligible once we control for life course variables.

This masterful project cannot overcome some familiar problems of comparability of measurement across datasets and the absence of measured school

and workplace characteristics that may interact with family variables, but it should be recognized as rigorous sociology that has entered a contentious debate and provided the last word.

Social Movements: Identity, Culture, and the State.

Edited by David S. Meyer, Nancy Whittier, and Belinda Robnett. Oxford University Press, 2002. 366 pp. Cloth, \$70.00; paper, \$21.95.

Reviewer: DANA R. FISHER, *Columbia University*

David Meyer begins this edited volume by pointing out that “the essays in this volume represent a concerted effort to build bridges among people researching collective action and social movements and to encourage the construction of comprehensive and synthetic approaches to the study of social movements.” To achieve these goals, Meyer and his coeditors have enlisted the efforts of social movement scholars who focus on a variety of topics in this extensive collection. The book is broken down into three sections: States and Policies; Organizations and Strategies; and Collective Identities, Discourse, and Culture. Most of the chapters are case studies. The purpose is to explore the mesolevel of research on collective action and social movements. In other words, this volume is focused on the social processes that take place between the micro and macro levels of society. Suzanne Staggenborg’s contribution to the volume (chapter 7) provides a very good review of the social movement scholarship that focuses on the mesolevel and calls for the kinds of research that is included in the volume.

The fourteen chapters of these sections are rather uneven — coming from multiple theoretical perspectives and focusing on very different scales of analysis. Even though Whittier identifies this diversity as an additional benefit, it is confusing for the reader and detracts from the overall depth of the case studies. The section on states and policies, for example, includes five chapters with very different research foci: one compares movements in Burma, Indonesia, and the Philippines; one looks at the National Union of Mineworkers’ attempt to organize miners in the South African gold mines; one looks at women’s movements in India; one looks at the development of the lesbian and gay movement in Vermont; and one looks at the civil rights movement in the U.S. Although these chapters all explore the ways that movements interact with the state and represent different scales of analysis the relationship among these very different cases is not laid out strongly enough. The sections on organizations and strategies and collective identities, discourse, and culture provide similar levels of variety that make it difficult to keep track of the focus of the book. Nonetheless, the chapters from these sections provide rich case studies about social movements around the world.