Occupational Inequalities

Sex Segregation in the Workplace. Trends, Explanations, Remedies. BARBARA F. RESKIN, Ed. National Academy Press, Washington, D.C., 1984. x, 313 pp. Paper, $22.95. From a workshop, May 1982.

Women who work full time throughout the year earn on average only about 60 percent of the wages paid to men who work full time. The papers in this volume address the possibility that occupational segregation—the employment of men and women in dissimilar jobs—contributes to the earnings gap. The volume grows out of a National Research Council workshop in which a group of researchers examined the extent of sex segregation in the labor force of the United States, the reasons for such segregation, and the outcomes of policies and programs designed to reduce it. The papers show that sex segregation pervades the labor force, but they offer different assessments of the level of and trends in such segregation. Elsewhere Andrea Beller has contended that equal employment legislation reduced occupational segregation in the 1970's, especially for those workers who entered the labor force for the first time. She repeats the argument here. She uses as evidence trends in the data from the Current Population Survey, a monthly analysis that the Bureau of the Census conducts. According to Beller, the trend between 1960 and 1970 was toward ever greater concentration by sex. But in the 1970's women moved increasingly out of traditionally female jobs, with the result that occupational segregation declined continuously throughout the decade. William Bielby and James Baron, on the other hand, paint a portrait of segregation that contrasts sharply with the one Beller draws. They maintain that segregation levels remained consistently high during the late 1960's and early 1970's. The apparent conflict between the two interpretations flows from a difference in the kinds of data used. Beller used for her units of analysis 11 major occupational groupings, as the Bureau of the Census classifies them. Bielby and Baron drew their information from a sample of firms in California and used job titles within the firms to indicate occupations. As a consequence, the categories on which Bielby and Baron report are narrower than those that Beller considers. The contrast merits attention, for it is evident from these two chapters and several subsequent ones that the broader the classification scheme that is used the lower the level of segregation that will be found.

Whatever the extent and level of sex segregation, it occurs frequently enough to warrant some analysis of its causes. Three types of explanation prevail. The first, human capital theory, attributes segregation to differences in the skills, qualifications, and attitudes that men and women bring to the job market. The second, discrimination theory, asserts that for various reasons employers allocate men and women to different work sectors. The third, a variant on discrimination theory, locates the cause in the practices of institutions outside the job setting itself.

One variant of human capital theory maintains that women give priority to home and family over career; hence they look for jobs they can leave and re-enter easily. But men avoid the jobs that allow for intermittency, for characteristically such jobs pay low wages and provide few opportunities for advancement. In a chapter entitled "Work experience, job segregation, and wages," Mary Corcoran, Greg Duncan, and Michael Ponza challenge that explanation. For one thing, men can be found in occupations with very imbalanced sex ratios; is a search for occupations that allow for intermittency, then, a critical force in job choice? For another, studies of women over their work careers have found no greater tendency for women in discontinuous careers than for those in continuous ones to be concentrated in heavily female jobs. A chapter by Rachel Rosenfeld also speaks to the matter of intermittency, albeit somewhat indirectly. Rosenfeld examines job mobility: the extent to which men and women move out of sex-typed occupations. She reports that sizable numbers of men and women move from "atypical" to "typical" occupations; movement occurs as well, but less frequently, from "typical" to "atypical" occupations. Most relevant in the present context is her finding that family responsibilities had no effect on the pattern of movement in her sample. The theme emerges from several of the chapters that human capital theory provides but a partial explanation for occupational segregation.

Theories that probe employer behavior and attitudes help illuminate segregation. According to one argument, employers do not wish to invest heavily in employees who may have a weak commitment to the job or to work in general. The assumption that women are not committed may lead the employer to direct women away from those jobs in which training costs are high and intermittency disruptive. Another argument locates discrimination by the employer not in his or her own predilections but in the preferences of co-workers and customers. If the males who are employed in an occupation resist the entry of females, then to avoid turmoil and hostility the employer may restrict further hiring for that occupation to men only. The same thing applies if customers prefer products by or services from one gender and not the other. When these preferences are acted upon by a range of employers, the result is a highly segregated occupation.

The discrimination theories have certain limitations. First, they assume far greater differences between "male" and "female" jobs than the data would support. Not all "male" jobs require heavy investments by the employer, and not all "female" jobs can be left and re-entered readily. Second, they give inadequate attention to the role that competition should play in reducing discrimination. Francine Blau presents the case this way. If we assume that employers differ in their tendencies to discriminate against women as employees, then those that hire women should have lower costs and thus higher profits. In the long run, these firms would survive, not those employing the higher-priced workers: men. Third, the theories account inadequately for the changes that jobs have undergone over time. As Myra Strober shows here and in earlier publications, public school teaching was not always a female occupation. In Massachusetts women constituted 56 percent of the public school personnel in 1834 and 78 percent in 1850. For the United States as a whole the representation of women in the public school ranks rose from 60 percent in 1870 to 86 percent in 1920. Can one assume that radical changes in employer, co-worker, and client views took place over the period and in fact preceded the rapid growth of the female

teaching population? Strober questions that assumption explicitly; other chapters offer implicit criticisms of it.

Patricia Roos and Barbara Reskin hold that formal and informal processes outside a given workplace constrain the options available to women. To these analysts, one must study work-related institutions, not just employers and employees, to understand occupational segregation. They have in mind the institutions that provide job training. Apprenticeship programs, they show, often are advertised only within a plant, sometimes in areas—men's restrooms, for example—to which women have no access. They have in mind, too, the informal networks through which information about job openings flows. The evidence shows that women are more likely than men to rely on formal job search methods. Yet the greatest returns go to those individuals who can rely on contacts. Women and men do not have the same possibilities for learning about and pursuing job openings. Roos and Reskin do not regard studies of employers as unimportant, nor do the critics of human capital theories maintain that such theories should be discarded entirely. Instead, the contributors see occupational segregation as the result of forces in individuals and institutions, forces that are contemporary and historical. They contend that policies for reducing segregation and the wage inequities that accompany it must rest on a careful understanding of the complexities that are involved.

The final section of the volume looks at efforts to provide wider options to women. Brigid O'Farrell has published over the past few years a number of analyses on the consequences of affirmative action and equal employment programs. In collaboration with Sharon Harlan she provides here an overview of strategies that companies have used to broaden opportunities. Under court order, American Telephone and Telegraph Company (AT&T) agreed to promote members of a protected group over more senior white men in order to meet affirmative action goals. A midwestern steel company, again under court order, established a training school for motor inspectors in order to increase the numbers of women and minorities in that occupation. According to the authors, intervention efforts are most likely to succeed if there is a structure for administering them and support for their purposes from the highest level of the organization. O'Farrell and Harlan share with Beller the view that equal employment policies can reduce occupational segregation. But whereas Beller assumes that the changes she has found stem from the policies, O'Farrell and Harlan provide a more direct link between federal policies and outcomes for women.

The volume probes issues that are of interest to both researchers and policy-makers. At the research level, one would hope to see as a result of the publication greater consensus concerning the measurement of occupational segregation. Beller defines a "male occupation" as one in which 70 percent or more of the workers are men; Rosenfeld means by "male dominant" those occupations in which men hold at least 51 percent of the jobs; for Corcoran, Duncan, and Ponza, if fewer than half of the workers are female, then the occupation is a male occupation. The differences in cut-off points, even though they sometimes are slight, matter if one attempts to compare trends in segregation over time and over different data bases. There is yet another advance on the research front that could issue from this publication. It is quite apparent from the chapters and the commentaries on them that the extent of segregation is best captured by refined occupational categories, such as those in the Bielby and Baron analysis. The use of quite broad classes blurs the degree to which men and women hold the same jobs and hence complicates both analyses and policy development.

Undoubtedly, change has taken place, but there is still considerable work to be done before analysts and policy-makers will understand fully the breadth of the change. Nonetheless, one should not overlook the findings from O'Farrell and Harlan: vigorous and concerted action to reduce occupational segregation can have identifiable effects.

CORA BAGLEY MARRETT
Department of Sociology,
University of Wisconsin,
Madison 53706

Nonlinear Dynamics

Statistical Physics and Chaos in Fusion Plasmas. C. W. HORTON, JR., and L. E. REICHL, Eds. Wiley-Interscience, New York, 1984. xvi, 361 pp., illus. $85. Nonequilibrium Problems in the Physical Sciences and Biology, vol. 3. From a workshop, Austin, Tex., Dec. 1982.

In the past decade a number of exciting new tools and concepts concerning nonlinear dynamical systems have been developed. An ideal proving ground for their application is the field of fusion plasma physics, for it offers a broad range of problems to challenge the practitioner. Though the idea of magnetically confined plasma invites the image of order, the experimental actuality offers a rich variety of chaotic and ordered phenomena. The need to understand, predict, and design has led to the adoption of these new approaches, which greatly extend the power of more traditional methods.

This volume, which results from a workshop, supplements the earlier collection *Long-Time Prediction in Dynamics* in the same series. Most of the papers are clearly written, and all are stimulating. The organization of the volume is sensible, and the layout is attractive.

Not only is a magnetized plasma both ordered and chaotic, it is simultaneously Hamiltonian and dissipative. Thus the first part of the volume is devoted to Hamiltonian systems, which conserve phase-space. The structure of a magnetic field is a beautiful paradigm of such a system, with its family of field lines replacing the family of orbits in the traditional concept of a phase-space flow generated by a Hamiltonian. In a toroidal volume, the successive intersection of field lines with a cross-section displays the rich picture of regular regions of KAM (Kolmogorov-Arnold-Moser) surfaces and islands, with intermingled chaotic layers and regions. The underlying Hamiltonian nature of the magnetic field, freed of the need for canonical pairs, is discussed in a paper by Littlejohn, and the systematic search for order to which it gives rise is analyzed by Cary. The transition between order and chaos is amenable to renormalization-group methods, which are presented in a paper by Greene. The chaotic regions are complex, with a hierarchy of islands; the long-time correlation that results is studied in a paper by Karney. Collisional diffusion of particles across this complex structure is discussed in a paper by White.

Solitons are remarkable entities that paradoxically display coherence and chaos simultaneously. In plasmas they appear in many guises, and here they are studied analytically and numerically by Meiss, by Doolen, DuBois, Rose, and Hafizi, and by Ichikawa and Yajima and experimentally by Wong, Cheung, and Tanikawa. Their appearance is a hallmark of nonlinearity. More ephemeral and more mysterious are the clumps, particle correlations that are created by waves, act as wave sources, and are then destroyed. Their role in turbulence is studied by Balescu and Misguich, by Kono, and by Terry and Diamond.