RETHINKING OCCUPATIONAL INTEGRATION*

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Abstract

One conventional approach to enhancing gender equity in the face of significant occupational sex segregation has been to establish policies and procedures encouraging equal occupational representation by sex. However, what may seem a commonsense argument is not always (and may never be) the case. Continuing segregation in a variety of forms suggests that it would be fruitful to focus more attention on the variability existing within already "integrated" occupations. In this paper, we use U.S. Census data from 1970 to 1990 to focus on a subset of integrated occupations, and consider how these occupations reached compositional sex-equity. We identified three pathways to equity: feminizing, stable, and masculinizing, and investigate whether and how these pathways matter, by examining their compositional differences. Finally, we also address, in a preliminary way, how pathways affect labor market rewards.

Key Words: Occupations, Sex Integration, Sex Segregation, Gender Equity

RETHINKING OCCUPATIONAL INTEGRATION

For decades researchers have demonstrated that sex segregation is prevalent in the workplace. Women's representation in low paying and less prestigious occupations has contributed to the low status of working women. They are more likely than men to work in occupations that are part time, provide little or no benefits, have short career ladders, and pay less (Goldin, 1990; Jacobs, 1999; Roos and Gatta, 1999). One conventional approach to enhancing gender equity in the face of significant occupational sex segregation has been to establish policies encouraging equal occupational representation by sex. That is, if women enter predominantly male occupations (and conversely men enter predominantly female occupations), over time occupations will integrate and occupational sex segregation will presumably decline. Policies promoting integration also presumably have a secondary benefit of enhancing women's labor market rewards relative to men's.

However, what may seem a commonsense argument is not always (and may never be) the case. New evidence suggests both that equal sex representation in occupations does not necessarily produce gender equity at the job level, nor does equity in labor market rewards necessarily follow integration. Reskin and Roos (1990), among others, have shown that even as traditionally male occupations feminize, other forms of segregation sometimes remain or emerge at the job level within integrating occupations. These "new" forms of segregation may not be as visible, but may nonetheless operate in discriminatory ways to hinder women's genuine progress into occupations, and to affect the labor market rewards they receive.

Evidence of persisting segregation within integrating occupations suggests that we might benefit from a renewed focus on integration per se. In this paper we re-examine the concept of occupational integration, focusing specifically on a subset of already "integrated" occupations, or those in which men and women are approximately equally distributed. We consider how these occupations reached compositional sex-equity, and examine whether and how these "pathways" to occupational sex-equity matter. We conceptualize integration as an historical process, and changing occupational sex composition as dynamic.

SEX SEGREGATION AND INTEGRATION

Much of the literature on occupational sex segregation implies that sex-integrating occupations will be a panacea for women.[1] Both researchers and policymakers alike also suggest that sex segregation helps to explain sex differences in labor market rewards that accrue to men and women, and we agree with this assessment. The obvious implication is that if men and women would integrate sex-atypical occupations, occupational gender equity would ensue and sex differences in labor markets rewards would decline. However evidence suggests that this is not always the case, either because of persisting job segregation within occupations or because declining occupational sex segregation

[1] The other major policy approach to increasing women's labor market rewards relative to men's is comparable worth (e.g., England, 1992; Nelson and Bridges, 1999). The main focus in comparable worth, or pay equity, approaches is to evaluate the "worth" of jobs (through employer job evaluation schemes). Such approaches recognize that occupational sex segregation will persist. Pay policies free of market bias are thus needed to evaluate the worth of male and female jobs to individual employers. While pay equity is noteworthy in its own right, we focus in this paper on occupational sex segregation, and its implications for women's and men's labor market rewards.

does not always reduce the sex gap in earnings. We begin by reviewing literature that has explored occupational sex segregation and integration, and its link to labor market rewards. We then turn to a focus on integration, using 1970 to 1990 U.S. census data to examine a set of research questions about "integrated" occupations. We close by focusing on the implications of our analyses for the occupational sex segregation literature.

Explaining Occupational Sex Segregation

For decades many researchers have examined what generates and perpetuates occupational sex segregation. Typically these explanations evolve from either individualist or institutional theories of work (for more thorough, recent reviews, see Reskin, 1993; Jacobs, 1999; Roos and Gatta, 1999). Many individualist theories focused on "choices" women make in the workplace. Polachek (1979), for example, advocated economic explanations for segregation: knowing that they would leave the labor force to raise a family, women purportedly choose occupations that have higher starting salaries, but lower earnings trajectories, to maximize their lifetime earnings (in response, see England, 1982; 1984). Other researchers (Marini and Brinton, 1984; Jacobs, 1989) demonstrated that sex-role socialization tracks women (and men) into gender-appropriate occupations based on perceptions about their "natural" talents. Relative to men, women are expected to be more caring and nurturing, exhibit deferential behaviors, and take on lower level work roles. Women purportedly choose occupations consistent with their "natural" talents and life-cycle choices (see Hochschild, 1983; Allison, 1994; Gatta,

2002a),[2] and stereotyping employers are more likely to choose women for such occupations (Reskin and Roos, 1990).

On the other side of this debate are institutional explanations suggesting that formal and informal institutional work arrangements perpetuate occupational sex segregation by structuring differential opportunities for male and female workers. For example, unions can seek labor market shelters for workers (e.g., by requiring lengthy apprenticeship programs), government agencies can establish policies favoring one class of workers over others (e.g., veteran preferences), and employers (often working with unions) can establish entrance requirements that inhibit women's entry (e.g., height/strength requirements not relevant to job performance). Sex segregation analyses have also been the cornerstone of many institutional explanations of the earnings gap between men and women (Bielby and Baron, 1986; Marini, 1989; Goldin, 1990; Petersen and Morgan, 1995).

Since women tend to be segregated into occupations that are low in pay, some pay equity policies specifically encourage women to enter male occupations, especially in such nontraditional fields as science and technology. More broadly, many workplaces have implemented affirmative action policies to institutionalize equal opportunities for men and women in the labor market. Such policies have even become the explicitly stated goal of some national or international bodies: Hakim (1998:28) described policies of the Equal Opportunities Commission (EOC) in Britain, and international bodies such as the OECD, ILO, and European Commission, that see desegregation as the "principal mechanism for promoting equality between men and women."

[2] Hakim's (1998) preference theory is an updated version of such choice arguments.

In the 1970's and into the 1980's researchers began to note a more dramatic decline in overall sex segregation, an integration driven primarily by women's inroads into traditionally male occupations (Reskin and Hartmann, 1986; Reskin and Roos, 1990; Seibert, Fossett, and Baunach, 1997; Baunach, 2002).[3] Researchers thus began to shift their sights from explanations for occupational sex segregation to understanding shifts in sex composition, or more specifically to the determinants of women's entry into some traditionally male occupations. Using a theory of queuing that conceptualized the operations of both worker job queues and employers' gendered labor queues, Reskin and Roos (1990) identified a variety of factors creating a demand for women workers, most notably labor shortages; occupational growth; declining occupational earnings, security, or prestige; and reduced male interest. Other factors--such as changing societal expectations of men's and women's roles, changing skill mixes, declining discrimination, and reduced male resistance to women's entry---operated to increase women's supply to traditionally male occupations and change employers' perceptions of their suitability (see also Reskin, 1993).

For our purposes, a key finding in Reskin and Roos's (1990) work is that occupational desegregation does not necessarily yield gender equity. From case studies

[3] In a useful corrective to the traditional view that little change in sex segregation occurred prior to 1970, Weeden (1998:486) used a margins-free index of sex segregation to show that many extremely segregated occupations originally integrated in the 1930s and 1940s. Weeden argued, in fact, that about half of the change in segregation between 1910 and 1990 occurred prior to 1970 (p. 485). Weeden's results support another important finding in the literature, that women made dramatic inroads into traditionally male professional and managerial work in the post-1970 period. See Charles and Grusky (1995) for additional information on margins-free models of occupational sex segregation.

of 14 occupations, they theorized three distinct types of desegregation: genuine integration, ghettoization, and resegregation (p. 71).[4] Genuine integration refers to a situation in which women achieve equity with their male counterparts (e.g., employment in similar industries and establishments within integrated occupations). Although no clear-cut cases of genuine integration emerged in Reskin and Roos's case studies, their data do provide examples of both ghettoization (men and women in the same occupation perform different jobs and/or are employed in different firms and industries) and resegregation (when an occupation switches from predominantly male to predominantly female, or theoretically, vice versa). While appearing at the occupational level to be genuine progress toward integration, "both resegregation and ghettoization represented limited progress for women, indeed they point to the perpetuation of segregation by sex," albeit at different levels in the occupational structure (p. 71).

Other case studies provide additional evidence on the conceptual distinction between occupational *access* and *integration*, and its implications for labor market rewards. Investigating the increasingly feminized occupation of managers, for example, Stover (1994:401) found that female university managers managed less powerful, non-growing departments compared with their male counterparts. Similarly, Reskin and Ross (1992) found a "continuing significance of sex" in management occupations: for a representative sample of Illinois managers, women managers were concentrated at lower levels, more likely to supervise women workers, less likely to exercise authority, and earning lower salaries than their male counterparts (see also Jacobs, 1992). Britton

[4] Case study data allow researchers to distinguish between job and occupational segregation: "job" refers to a specific position within a specific establishment, while "occupation" refers to a collection of similar

(2003) examined male and female correctional officers working in America's prisons, finding that despite women's increased entry into corrections, prisons remain highly gendered, and women remain in lower paying, less prestigious positions. Consistent with Reskin and Roos (1990), this form of horizontal job segregation *within* occupations, although much less visible than vertical segregation *across* occupations, indicates that increased representation in occupations does not guarantee integration. Other researchers, such as Bielby and Baron (1984; 1986), Tomaskovic-Devey (1993), and Petersen and Morgan (1995) reaffirm these findings.[5]

Occupational Sex Segregation and Labor Market Rewards

Researchers have long assumed a strong negative association between percent female in an occupation and women's and men's labor market rewards, notably earnings. One research subfield has examined how workplace sex (and/or race) composition operates within organizational contexts to affect labor market rewards (see Reskin, McBrier, and Kmec, 1999; Tomaskovic-Devey, 1993). An important finding of this literature is that the percentage of female workers is negatively associated with women's

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jobs in different establishments (Reskin and Padavic, 1994:51-52).

[5] For an alternative view, see Hakim (1998:11), who argues (not convincingly in our view) that the theoretical focus on the segregation of jobs rather than occupations is a "mistaken idea," reflecting researcher prejudice: "The primary concern of studies of occupational segregation is whether women and men have equal access to all occupations—for example whether pharmacy as a profession is open or closed to women, and not with whether every single pharmacy shop in the country employs an female pharmacist." The consensus of American researchers, as noted, has been to view job segregation as a critically important component of labor market segregation by sex (even if most datasets do not allow adequate measurement of job, as opposed to occupational, segregation).

wages, and often men's as well. Reskin, McBrier, and Kmec (1999) argued that sex and race composition operate as features of an organization's social structure.

We focus here on whether sex-integration yields labor market benefits or, alternatively, whether variation in labor market rewards exists within integrated occupations. Cotter, DeFiore, Hermsen, Kowalewski, and Vanneman (1997:726) used metropolitan area labor market data to argue that as occupations integrate, "all women benefit," including women in traditionally female occupations. They found that at the macro level occupational sex segregation accounts for most of the gender differences in earnings. Recent cross-national comparisons, however, call into question the presumed strong association between sex segregation and labor market rewards. Rosenfeld and Kalleberg (1990) found that while Norway and Sweden have greater levels of occupational sex segregation (their indexes of dissimilarity are, respectively, 42 and 40) than the U.S. and Canada (respectively, 33 and 30), they have less gender earnings inequality [p. 84; see also discussion in McCall (2001:96-97) re Japan and the German Democratic Republic]. Similarly, using data for a range of countries, Blackburn, Jarman, and Brooks (2000) found that decreased sex segregation does not necessarily reduce the sex gap in earnings.

McCall found similar patterns within the U.S. (McCall, 2001:Ch. 4; see also 1998; 2000). Analyses of 1990 census data for over 500 U.S. labor markets showed that occupational sex segregation and the sex gap in earnings do not necessarily co-exist. Focusing on variability across labor markets in flexible/insecure employment, immigration, casualization, technology and trade, and changes in the industrial structures, she found that labor market factors differently affect the relationship between

occupational segregation and the earnings gap. In high technology manufacturing labor markets, for example, the traditional assumption of high occupational segregation and a high wage gap holds true. However, there are also regional labor markets in which a decrease in occupational segregation did not reduce the sex wage gap, and markets where there were high levels of segregation and low wage gaps.

Hakim (1998:74) also argued that there is "not even a loose association" between occupational sex segregation and the earnings gap in Great Britain. She found (p. 84) that the largest pay gap actually occurred in integrated (not male) occupations. These data, taken as a whole, suggest that high levels of occupational sex segregation can coexist with a more equitable distribution of wages, and vice versa, calling into question the idea that reducing occupational sex segregation necessarily shrinks the earnings gap.

Rethinking Occupational Integration

Previous literature on occupational sex segregation has been enormously useful in helping us to understand why occupational sex segregation remains in the contemporary labor market, and why the sex gap in earnings persists. It has been less useful in understanding why policies designed to reduce occupational sex segregation might be less effective in practice than anticipated. New evidence of variability existing within integrated occupations, however, leads us to a renewed focus on occupations that have reached compositional sex equity. We delve more deeply into what occupational integration means in practice, and examine how occupational sex composition changes over time. We examine a set of "integrated" occupations, situated theoretically between "male occupations" on the one hand, and "female occupations" on the other. Focusing on a set of already integrated occupations is conceptually and analytically useful, opening up

related areas of inquiry and allowing us to address important gaps in the occupational sex segregation literature.

Few researchers have studied integrated occupations per se, focusing instead on traditionally male and female occupations. One important exception is Hakim (1993; 1998), who compared male, female, and integrated occupations in Great Britain. Hakim's three-category typology of occupational sex segregation produced a set of "mixed" (or "integrated") occupations similar conceptually to ours. Although inherently descriptive in its origin, Hakim's typology has substantive implications: " . . . integrated and sex-segregated occupations are also substantively different—in the types of people they employ, the types of job[s] they contain and in workplace locations" (p. 30). The approximately 20 percent of the British labor force in integrated occupations received substantial benefits: incumbents in mixed occupations were the most highly qualified and the best paid, in comparison with their counterparts in more sex-segregated occupations.[6] Hakim concluded that it is integrated, and not male, occupations that offer women the "best jobs in terms of earnings and . . . status and prestige" (p. 60).

We had independently reached a similar decision to focus on integrated occupations. Dichotomous schemes that look simply at male vs. female occupations ignore that minority of occupations that includes approximately equal numbers of both male and female incumbents. If the policy goal is to encourage female entry into traditionally male occupations, it is important to focus attention on those occupations that

[6] This result was surprising to Hakim (1998:32): initially she expected that integrated occupations would be low-level occupations that served as transitional entry points to the labor market, after which incumbents would shift to more conventional (and sex-typical) permanent employment. Instead, it contained many managerial and professional occupations.

are already integrated (Hakim, 1998:32). We differ from Hakim, however, in that we are not convinced that integrated occupations are the easy answer to gender equity. Rather, our examination of the variability that exists within integrated occupations leads us to a quite different analytic strategy (and set of conclusions).

In looking *within* integrated occupations for insight, our work improves upon existing scholarship in three important ways. First, we build on existing case study research. As noted, much of the work on occupational integration in recent years has come from case study researchers examining how specific occupations integrated over time. This excellent work has been enormously important in documenting persisting job segregation within broader occupations (e.g., Reskin and Roos, 1990). Others too have built on case study research: Tomaskovic-Devey's (1993) survey of North Carolina adults, for example, found extensive intra-occupational job segregation by race and sex for a wide variety of occupations. Unlike Tomaskovic-Devey, we are unable to address intra-occupational, or job, segregation because we use census data. Our large sample sizes, however, do allow us to answer a set of related questions about how a large number of occupations in the U.S. occupational structure have integrated over time, and how their social composition has changed. Indeed, a broad focus on the dynamic process of integration is especially fruitful to better understand the variability existing within already integrated occupations.

Second, researchers have focused almost exclusively on women's entry into traditionally male occupations, and have paid little attention to the integration produced by men's entry into traditionally female occupations. This is quite understandable, because most integration to date has been the consequence of occupational feminization,

not masculinization. As we will demonstrate, however, understanding why occupations masculinize, and studying who enters masculinizing occupation, is important to fully conceptualizing occupational integration. Reskin and Roos (1990:15-16) provided several examples of female occupations that masculinized (see also Reskin, 1993; Reskin and Padavic, 1994). For example, historically, Irish male immigrants supplanted native white women in 19th century textile mills. Cigar making shifted from female to male to female once again throughout the 19th century. As cigar making shifted from home to factories, skilled immigrant men replaced farm women as cigar producers. With increased mechanization, less skilled female immigrants in turn replaced their male counterparts. In the 1930s and the 1960s, small numbers of men also moved into the female semiprofessions (e.g., social work, nursing, and librarianship), although these remained predominantly female occupations.

Reskin and Roos (1990:Table 1.6) found that when women were making dramatic inroads into traditionally male occupations in the 1970s, only three occupations disproportionately masculinized, all in the service sector: cooks, except short order; kitchen workers, food preparation; and maids and housemen.[7] Presenting more recent data, Rosenfeld and Trappe (2002) took advantage of a remarkable natural experiment to examine the occupational integration that occurred when the former state socialist society East Germany merged with its capitalist neighbor West Germany in 1990. They found extensive masculinization in East Germany between 1989 and 1998, across the occupational spectrum. Interestingly, many more occupations masculinized than

[7] Reskin and Roos's (1990:16) criterion for "disproportionate" entry was a nine-percentage point change between 1970 and 1980.

feminized in East Germany, just the opposite of West Germany, which more closely approximated the U.S. pattern (where many of the feminizing occupations were managerial and professional positions).[8]

Third, these historical examples provide some hints about another aspect of the integration process: while women have made notable progress integrating traditionally male occupations at the upper levels of the occupational hierarchy, native-born, white men seldom integrate traditionally female occupations. Instead, it is the more marginal men—blacks, Hispanics, immigrants, non-English speakers, low-skill workers—who replenish the labor queue for traditionally female occupations. These findings indicate the importance of taking into account both sex and race (as well as other labor force characteristics) in conceptualizing occupational integration and succession, something few researchers have done.

Reskin and Roos's (1990:32-33) theory of queuing is consistent with integration occurring through occupational succession by various race/sex groups. For example, for any specific job, employers could look first to white males, followed by white females, black males, and then black females (or perhaps for some traditionally male occupations, white men, black men, white women, and then black women). Tomaskovic-Devey (1993:6) also linked the "status composition" of a job to its quality, in that the race and

[8] The occupations that feminized in East Germany were those that were already predominantly female. Some examples of masculinizing occupations in East Germany include production and operations department managers; life science professionals; nursing and midwifery associate professionals; social work associate professionals; protective service workers; precision workers in metal and related materials; printing and related trades workers; building caretakers, window and related workers; mining and construction laborers; transport laborers and freight handlers (Rosenfeld and Trappe, 2002:Table 3).

sex composition of jobs can rise (or fall) with job quality. He argued that the most valued and skilled jobs are reserved for white men, while women and blacks move into those jobs that devalue or deskill. An example of this shifting of jobs across race-sex groups occurred in the 1960s when employers hired black women in clerical and sales jobs. Prior to that time, large numbers of black women worked as domestic servants (Reskin and Padavic, 1994:55-57). Similarly, black men worked in low level service jobs until the late 1930s and 1940s, when some employers began to hire them into skilled jobs (p. 55).[9]

Catanzarite's (2002) study of new Latino immigrants to Los Angeles are consistent with the idea of occupational succession. She developed a panel dataset of sociodemographic characteristics for 1980 and 1990 detailed census occupations to analyze the dynamic wage-composition relationship. She found that these immigrants "followed the footsteps of coethnics," increasingly concentrating in low-pay, low-skill "brown-collar" employment where previous generations of immigrant and native Latinos worked (p. 327). Once occupations lose pay or skill, they shift to more marginal workers. Occupational segregation by race and sex thus tends to persist. [10]

In sum, we complement and extend previous case studies to examine integration across the occupational spectrum, for a national sample. We also consider the role of occupational masculinization as well as feminization, and explore further how sex

[9] Reskin and Padavic (1994:57) argued: (1) there is twice as much sex as race segregation, and (2) within sex, blacks and Hispanics tend to be in less desirable occupations than their white counterparts (see also Albelda, 1986; Cohn, 2000).

[10] For other articles examining sex-race composition and wages, see also Catanzarite (2000; 2003) and Catanzarite and Aguilera (2002).

segregation interacts with other labor force characteristics, such as race, ethnicity, language skills, and immigrant status. In a preliminary way, we examine the link between occupational integration and its labor market consequences. In doing so we further examine the meaning of occupational integration by focusing on occupations that by one commonly accepted measure—sex-equitable percent female—are considered integrated. We organize our analyses, and presentation of results, by focusing on four main research questions:

(1) Which occupations are "integrated" (i.e., have a sex-equitable distribution)?

(2) Are there different pathways that occupations take to reach gender balance over time?

(3) Are the ways that occupations reach sex equity over time patterned in socially important ways? Specifically, how do race and sex operate in the integration process? And,

(4) Are there labor market consequences of pathways to integration?

Data

We examine patterns of sex integration from 1970 to 1990 using census microdata for detailed three-digit occupations that had equal sex representation by 1990. The data used in this analysis were prepared as part of a larger NSF-sponsored project on trends in occupational sex and race composition between 1970 and 1990 (for details, see Reskin and Roos, 1990; Roos and Reskin, 1996).[11] Our basic sample selection was for those persons 16 and older who worked the previous year (1969, 1979, 1989) and who were in

the civilian labor force during the reference week. We restricted all analyses to those 25 to 70 years old. We used the weight variable provided in the 1990 PUMS microdata to weight our results to the population size; both 1970 and 1980 census data were self-weighting. The 1980 and 1990 characteristics were drawn from the 1980 and 1990 Public Use Microdata (A sample, 5 percent), respectively. The 1970 characteristics were from two 1-percent samples of the 1970 Public Use Microdata that contain imputed 1980 industry and occupation codes.[12] We concatenated the two 1 percent samples (1 percent each from the original 5 percent and 15 percent samples) to create a 2 percent sample of the United States in 1970 (U.S. Bureau of the Census, 1972, 1983, 1993; Roos and Reskin, 1996).[13] The large sample sizes in the census data enable us to address occupational sex segregation at the detailed occupational level.

PATHWAYS TO GENDER EQUITY

Our first substantive task is to operationalize "occupational integration." To investigate sex-integrated occupations we first had to determine just which occupations were "integrated" (research question 1). Making such a judgment is obviously somewhat arbitrary. We use a fairly strict criterion, considering an occupation "integrated" if it was

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[11] Grants from the National Science Foundation and the Rockefeller Foundation supported their efforts (NSF: in 1985: SES-85-12586 and SES-85-12452; in 1993: SBR-93-10628 and SBR-93-10867; Rockefeller: RF84036 and RF GA OE 8533).

[12] This means that we have comparability across all three census years, using three-digit 1980 occupation codes (n=498). Given the substantial changes in the occupational classifications between 1970 and 1980, comparisons across census years without such comparability would be highly questionable.

[13] The U.S. Bureau of the Census produced the special one percent samples, and Donald J. Treiman (UCLA) made them available to us.

between 45.0 and 55.0 percent female. We believe that using a strict definition of integration will provide a conservative estimate, yielding a set of occupations not seen as either stereotypically female or male.[14] In addition to a numerical depiction of occupational integration, we also examine whether there are differences in the pathways that an occupation takes to reach sex equity (research question 2).

We initially operationalized sex-equitable occupations in two ways: occupations that had reached approximately equal sex composition by 1970, and those reaching sex equity by 1990. Both methods allowed us to determine not only which occupations were sex equitable, but also to evaluate to what extent they were stable in their sex composition over time, or in transition to either predominantly male or predominantly female occupations. Tables I and II present the results of these two methods.

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[14] Other researchers have used varying, and more liberal, definitions of integration, demonstrating how arbitrary such cut points are (Reskin, 1993:244). Tomaskovic-Devey (1993:29) distinguished between all male or all female occupations (100 percent male or female, respectively), "integrated occupations" (1 to 99 percent female), and "demographically balanced occupations (30 to 70 percent female). Jacobs (1989:68) identified a "sex-neutral" category for occupations with from 30 to 69.9 percent female. Others explicitly used a percentage spread around the current percent female in the labor force. Rytina (1981:53), for example, used a 20 percent spread, yielding a set of "neutral" occupations defined as 21 to 59 percent female (see also Rytina and Bianchi, 1984:14). Following this same logic, Hakim (1998:10) defined "mixed occupations" as 25 to 55 percent female [these numbers are based on a 15 percent range around the approximate percent female in the labor force as a whole (40±15 percent; Hakim, 1993; 1998:10)]. Unlike these researchers, we are not interested in developing a typology of "male," "female," and "mixed" occupations, and hence focus strictly on selecting a set of occupations approximately half male and half female (50 ± 5%), theoretically representing complete sex equity in representation. This solution has a lot

Table I lists the 21 (of 498) detailed occupations generated by the first method (i.e., a percentage female between 45.0 and 55.0 in 1970). Using the 1990 labor force as a rough guide, these 21 occupations represented 4,530,026 persons, or 3.8 percent of the labor force. The most striking thing about these data is how few occupations were sex equitable in 1970. Comparing the percent female in these occupations for both 1970 and 1990 informs our definition of an integrated occupation. Only five of these 21 1970 occupations remained sex-equitable in 1990 (indicated by bold type): nursery workers (484), bookbinders (679), miscellaneous printing machine operators (737), photographic process machine operators (774), and product inspectors, checkers and examiners (796). Compositional sex-equity changed dramatically over time as many occupations that were sex equitable in 1970 became predominantly female by 1990. For example, therapists (105), recreation workers (175), legal assistants (234), information clerks (323), and social welfare eligibility clerks (377), were sex-equitable in 1970 but had reached at least 70 percent female by 1990. If an occupation's sex composition does not remain stable over time, Reskin and Roos's (1990) "resegregation" is perhaps a more apt description.

[Table I about here]

Table II presents comparable data for the second method, listing the detailed occupations that had achieved compositional sex-equity by 1990. We chose to use the occupations in Table II as our final list of integrated occupations for three main reasons. First, more occupations had achieved a sex-equitable distribution by 1990: 50 (of 498) occupations met our criterion by 1990, compared with only 21 in 1970. Second, the 1990

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of intuitive face validity, since most people will not readily know the amount of female representation in the labor force as a whole.

set of occupations represented a larger proportion of the labor force: 10.8 percent, as opposed to 3.8 percent. Third, the 1990 occupations allowed us to illustrate the existence of substantive pathways that occupations took to achieve equal sex representation. Using detailed census data we were able to trace how these occupations' sex composition changed from 1970 to 1990. In doing so we identified three main "pathways" to sex-equity: feminizing, stable, and masculinizing (research question 2). Table II thus lists sex-equitable occupations separately by these pathways. Overall, it is most striking how sex-segregated the American occupational structure remained in 1990: 89.2 (=100-10.8) percent of the labor force in 1990 still worked in sex-segregated occupations, at least according to our strict criterion of 45 to 55 percent female.

[Table II about here]

With respect to the types of occupations that are gender balanced, several trends emerge. First, by far the largest group of occupations (n=37, representing 7.7 percent of the 1990 labor force) reached sex-equity by 1990 because they feminized. We operationalized "feminizing" by the criterion of percent female increasing by at least 10 percentage points from 1970 to 1990. The most striking finding about these feminizing occupations is that they are concentrated in the professional and managerial groups (24 of the 37). The remaining are in sales (n=2), service (3), clerical (3), farming (1), skilled production work (2), and operators (2). Within the sex-equitable occupations we studied, women made more inroads into the higher paying and more prestigious managerial and professional occupations than in other occupations.

Second, nine occupations (representing 1.5 percent of the 1990 labor force) remained stable in their sex distribution from 1970 to 1990 (i.e., where the percent female

changed less than 10 percentage points in either direction over the 20-year period). These occupations include one professional occupation—statisticians (which had the largest change in percent female among the stable occupations, 9.4 percent)—as well as clerical, service, and production workers.

Finally, four occupations (representing 1.6 percent of the 1990 labor force) achieved sex-equity because men entered the occupation. These "masculinizing" occupations (where the percent female declined by at least 10 percentage points)---sales support occupations, peripheral equipment operators, mail preparing and paper handling machine operators, and cooks---went from predominantly female in 1970 to sex-integrated in 1990.

IMPLICATIONS OF PATHWAYS

As a whole the existence of several pathways to sex-equity demonstrates a notable variability in what are commonly seen as integrated occupations. In this section we explore what these pathways to sex-equity mean substantively, by examining whether they are patterned in socially important ways (research question 3). We first use tabular analysis to investigate whether the pathways differ with respect to the characteristics of their incumbents, and then address the question more systematically with multinomial logit regression. This multivariate analysis allows us to examine the net effects of a set of personal and work-related characteristics on pathway location. We then offer a preliminary analysis of the labor market implications of pathway location (research question 4).

Social Composition of Pathways

Table III reports descriptive data for our sex-equitable occupations, for a set of relevant variables drawn from the census. Most of the variable coding is intuitive and consistent with census definitions, but a few require further definition. "Core" and "periphery" designations are taken from an industry classification Hodson (1983) developed (see Table IV notes for additional information). The "full time" variable is measured slightly differently in the three census years. In 1990 and 1980, "full time" refers to percent working 50 or more weeks and usually working 35 or more hours per week in the previous year. In 1970, "full time" refers to percent working 50 or more weeks and 35 or more hours during the 1969 reference week. "Hispanic" also varies over the three census years. For 1970 the variable refers to "Spanish descent," for 1980 "Spanish origin," and for 1990 "Hispanic." The variable "Percent speaking English not well or not at all" was not included in the 1970 census.

[Table III about here]

Table III illustrates convincingly that pathways do matter: feminizing, stable, and masculinizing occupations for 1970, 1980, and 1990 vary widely on a set of personal and work-related characteristics. Comparing across the three types of integrated occupations within each census year, perhaps not surprisingly percent female is directly associated with whether the integrated occupation is feminizing or masculinizing. Feminizing occupations were traditionally male occupations in which women gained entry, while masculinizing occupations were traditionally female occupations in which men gained entry. This is obviously most true in 1970 when the percent female was 25.2 in feminizing occupations and 75.7 in masculinizing occupations. Although these

percentages narrowed dramatically by 1990—because these occupations had increasingly integrated—pathway differences remained large (49.6 to 59.9 percent for feminizing and masculinizing occupations, respectively). Occupations that remained stable in their sex composition between 1970 and 1990 had a percent female in the middle (55.9 percent in 1990).

Perhaps most striking in Table III is that the characteristics of persons in sex-equitable occupations vary depending on pathway. For instance, relative to masculinizing occupations, being in a feminizing occupation in 1990 is associated with being in full-time work, a U.S. citizen, and working at home. In addition, relative to masculinizing occupations, feminizing occupations have higher percentages of workers with at least a college degree, who are white, have intact husband-wife families, and are employed in core industries.[15] In contrast, being in a masculinizing occupation in 1990 is associated with being below the poverty level, foreign born, Hispanic, and not speaking English well.

In addition to the differences across different pathways there were also sex differences within each pathway (see Appendix A). For instance, the highest 1990 percentages for foreign born, non-citizens, Hispanic workers, and those who do not speak

[15] Class of worker, although less clear cut, demonstrates a similar pattern: relative to masculinizing occupations, feminizing occupations have higher percentages of workers in government and self employed work, as opposed to wage and salary work. Interestingly, both of these are work sites that have traditionally been havens for women workers searching for equal work opportunities. These more detailed results are not included in the table. For example, in 1990, 20.4 and 13.2 percent of workers in feminizing occupations were employed in government and self-employed work, respectively. In comparison, 14.2 and 5.2 percent of workers in masculinizing occupations were so employed.

English well, were men in masculinizing occupations. Further review of these data suggests that while occupational feminization is providing primarily college-educated white women with the opportunity to move into traditionally high paying, prestigious male occupations, masculinization is occurring mainly for minority men.[16] This demonstrates that integration is occurring through women moving into better paying, more prestigious traditionally male jobs, and foreign born, non-citizen, and Hispanic men moving into the lower paying traditionally female jobs. Looking at age differences within integrating occupations (in Appendix A) demonstrates that women tend to be younger than men in feminizing occupations and older then men in masculinizing occupations, suggesting that the changing sex composition occurring in these occupations is happening at younger ages, perhaps at cohort entry.

Referring back to Table III, comparing across census years shows that these basic patterns are replicated in both 1980 and 1970. Although the percentage of workers who are white in each type of sex-equitable occupation has dropped slightly from 1970 to 1990, masculinizing occupations have the smallest percentage of white workers in each year. This indicates that there are differences in the kinds of occupations minorities and whites entered from 1970 to 1990. Masculinizing occupations in 1970 and 1980 also have a higher percentage of workers who are Hispanic, foreign born, noncitizen, and do not speak English well (the last variable is not available for 1970). It is also interesting

[16] As noted in the introduction, this is consistent with Reskin and Roos's (1990:15) point that historically when men replace women in an occupation the shift was from a native-born female labor force to a foreign-born male labor force (e.g., textile mills and cigar making occupations; see also, Hartmann, 1976; Kessler-Harris, 1982). Our data suggest that this phenomenon is still operating within this small number of present-day masculinizing occupations.

that the percentage gap between masculinizing and feminizing occupations has consistently widened for each of these variables from 1970 to 1990. In all, these data demonstrate that sex-equitable occupations are patterned in socially important ways, depending on how they reached sex-equity by 1990.

Multivariate Analysis of Pathway Location

To understand the relative effects of personal and work-related compositional characteristics in predicting pathway location we used multinomial logit regression models for the 1990 data. Table IV provides variable definitions, and Table V presents the results in the form of odds ratios. The dependent variable in Table V is occupational location in 1990, coded into one of three pathways: feminizing, stable, or masculinizing.[17] The three-category dependent variable "pathway to equity" assumes two vectors of coefficients. We designated "feminizing" as the comparison group. Hence, the first set of coefficients in Table V represents the odds of being in a “masculinizing” vs. "feminizing" pathway, and the second set represents the odds of being in a "stable" vs. "feminizing" pathway (the first is our focus; we do not separately discuss the second). We estimated two prediction models: model 1 represents the net effects of personal characteristics on the odds of being in a particular pathway, and model 2 adds in the effects of work-related characteristics.

[Tables IV and V about here]

The net effects reported in Table V for the most part replicate the bivariate results reported in Table III, demonstrating once again that these pathways to equity are

patterned in socially important ways. With respect to Model 1, women are more likely to be in masculinizing than feminizing occupations, confirming that feminizing occupations are traditionally male occupations in which women gained entry, while masculinizing occupations are traditionally female occupations in which men gained entry. With only one exception (Hispanic), those variables typically associated with lower labor market rewards are positively associated with location in a masculinizing pathway (odds ratios greater than 1; positive logit coefficients); conversely, those variables typically associated with higher labor market rewards predict location in feminizing occupations (odds ratios less than 1; negative logit coefficients). Being nonwhite or foreign born, having poor English skills, or being in poverty strongly predict location in masculinizing as opposed to feminizing occupations. Blacks are over twice, and other races almost twice, as likely as whites to be in masculinizing occupations (the odds ratios are 2.22 and 1.90, respectively).[18] Similarly, those in poverty are 2.86 times more likely to be in masculinizing occupations, and the comparable odds ratios for poor English skills and foreign birth are 2.04 and 1.40, respectively. Relative to those in presumably more stable, married-spouse present families, the never married are 1.47 times more likely to be located in masculinizing occupations. Even net of these primarily ascriptive characteristics, education is critical in predicting pathway location: those with less than a high school degree are 53.5 times more likely than those with a college degree to be in

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[17] We estimate prediction models for 1990 only, because that year is the end point for calculating "pathway" (e.g., as indicated in Table II, pathway was determined by comparing the occupational percent female in 1970 with that in 1990, coded as a measure of 1990 occupational location).

[18] We calculated the odds ratios via the equation "e^{b}" (for example, the odds of being in masculinizing vs. feminizing occupations for blacks relative to whites was $e^{(.799)} = 2.22$ (Demaris, 1992:66).

masculinizing occupations (the odds drops to a still large 12.6 for those with a high school degree/some college). In contrast, age, U.S. citizenship, and being Hispanic are positively predictive of location in a feminizing pathway. The only surprise here is Hispanic identity: although predictive of a masculinizing pathway at the bivariate level, once other personal characteristics are taken into account (e.g., foreign birth, citizenship) the net effect of Hispanic predicts location in a feminizing pathway. This finding suggests that it is not their Hispanic identity per se that locates Hispanics in low-earning, low-prestige masculinizing occupations, but other aspects of their lives (e.g., foreign birth, lack of English skills, lower education).

Model 2 controls as well for several work-related variables, and the results are instructive. All but one of the personal logit coefficients keep the same sign in the incremented equation (data not shown), and most of the odds ratios are of similar magnitude (although a few strengthen and a few others attenuate).[19] The major net changes are for those in poverty and for those with less than a college degree: in model 1 these variables clearly served as proxies for critical work-related variables and once the latter were controlled, their effects declined. Full-time, and professional/managerial, work are highly predictive of location in a feminizing pathway, while being in a peripheral industry predicts a masculinizing pathway.

Labor Market Implications of Pathways

Previous sections demonstrated that pathways to equity are patterned in socially important ways. In this section we turn, in a preliminary way, to examine the implications of pathway location for labor market rewards, specifically annual earnings.

[19] The one sign switch (formerly married/separated) is not a large shift in magnitude.

Table IV indicates that even in the sex-equitable occupations we investigate, pathways (and percent female) are consistently and importantly associated with annual earnings. Regardless of year, those in feminizing occupations earn significantly more than their counterparts in masculinizing occupations. Even in 1990 incumbents in feminizing occupations (with the lowest percent female, 49.6) earned on average $30,899 compared with $11,169 for those in masculinizing occupations (with the highest percent female, 59.9). The robust nature of this relationship can be seen in the fact that this pattern is replicated for all incumbents in both 1970 and 1980, as well as separately for men and women in each year.[20]

[Table VI about here]

Relative to men's, women's earnings in sex-equitable occupations increased, from 47.7 percent in 1970 to 58.3 percent in 1990. This increasing earnings ratio over time is consistent with what many researchers have already noted for all occupations (e.g., see Roos and Gatta, 1999, for a summary of the relevant literature).[21] In 1970, feminizing occupations had a slightly higher earnings ratio than stable or masculinizing occupations (48.2 vs. 46.6 and 44.4, respectively). By 1980 and 1990 this slight difference had eroded even further. By 1990 there appears to be almost no pathway differences in the earnings ratios. Pathways thus affect men and women in similar ways: the greatest

[20] Because the pathways are calculated from the change in percent female from 1970 to 1990, the 1970 and 1980 results need to be interpreted as 1970 or 1980 occupational locations, respectively, that by 1990 had feminized, remained stable, or masculinized.

[21] These earnings ratios are lower than those typically found because they refer to annual salaries for all workers. Typically, researchers calculate earnings ratios for year-round/full-time workers (see Roos and Gatta, 1999).

earnings accrue to men and women in feminizing occupations, and the least to male and female workers in masculinizing occupations.

DISCUSSION

Many researchers have documented significant shifts in the sex composition of the U.S. occupational structure over the past decades. We found that despite such shifts, parity in occupational sex composition remains an uncommon feature of the labor market: only 10 percent (=50/498) of all detailed occupations coded in the U.S. Census achieved a gender balanced distribution by 1990, representing 10.8 percent of the labor force. Moreover, there are substantively important pathways that sex-equitable occupations take to achieve sex equity: they can feminize, remain stable, or masculinize. These pathways help to illuminate the characteristics of workers in these newly integrated occupations, and their labor market rewards. Overall, our analysis of sex-equitable occupations illustrates both the good and bad news about changing occupational sex composition.

First the good news: most sex-equitable occupations are characterized by feminizing pathways, indicating that there has been an influx of women entering predominantly male occupations from 1970 to 1990. Even more promising is that the bulk of feminizing occupations tends to be concentrated in professional and managerial work where wages are high. Thus, women (especially young, college-educated, white women) are increasing their representation in high paying, high status occupations from which they were previously excluded. This particular finding replicates Hakim's (1998:59) finding that "integrated" occupations in Great Britain were predominantly managerial and professional, requiring higher levels of education and commanding

higher pay. In comparison with "male-dominated" (< 25% female) and "female-dominated" (>55% female) occupations, Hakim's "integrated" (25-55% female) occupations ranked highest, in incumbents' qualifications, the proportion self-employed, class, occupational grade, and pay (Hakim, 1998:244-45). In light of our findings, Hakim is likely basing her conclusions about Great Britain primarily on those traditionally male occupations that have feminized in recent years. Our findings of pathway differences suggests a more complex interpretation, emphasizing occupational succession by race and sex, and less optimism regarding occupational integration as a panacea for women or men in the U.S.[22]

Our findings also suggest some possible areas of concern. Women's entry into predominantly male occupations is not synonymous with genuine integration. Instead, women may enter predominantly male occupations as part of a larger resegregation process, as Reskin and Roos (1990) observed. While it is too early to tell whether these occupations will resegregate as "female," our findings regarding the 1970 sex-equitable occupations (in Table I) are instructive: 18 of these 21 occupations continued to shift toward female predominance. Indeed, by 1990 eight of the occupations had a sex composition of at least 60 percent female.

We also found that a few occupations reached sex-equity in 1990 because men entered them. The characteristics of workers in masculinizing occupations demonstrate that it is foreign born, minority men, with poor English skills who are moving into traditionally female occupations, jobs that tend to be low paying and low status. Of course, to put our findings into context, men seldom move into traditionally female

[22] For critiques of Hakim's work, see Joshi (1997), Crompton and Harris (1998), and Britton (1999).

occupations [only four of our integrating occupations (representing 1.6 percent of the labor force) sufficiently integrated between 1970 and 1990 to fit our criterion of "masculinizing"]. Nonetheless, because the labor force participation of minorities is predicted to increase in the early part of the 21st century (Gatta, 2002b), one might expect that additional traditionally female occupations may follow this pattern.

Although we had no job-level data per se, our findings are certainly consistent with recent research suggesting that occupational sex-equity does not necessarily translate into genuine occupational integration, and with a finding of continued gender inequity in labor market rewards. Bielby and Baron (1986), and more recently Petersen and Morgan (1995), found that equity in occupational sex composition continues to mask persistent within-occupation inequalities: men and women are located in different jobs, specialties, work establishments, and industries within occupations [see also Reskin and Roos's (1990) case study results re occupational ghettoization].

Our preliminary earnings analysis shows as well that pathway to equity matters for subsequent labor market rewards. Specifically, workers in feminizing occupations receive the greatest labor market rewards, earning more than twice what their counterparts in masculinizing occupations earn. Regardless of pathway, women still earn less than men, although that gap is getting smaller over time. In sum, our findings suggest that occupational integration is a complicated, dynamic process. Genuine occupational integration and gender equity in earnings remain elusive in the American occupational structure, even as workers make notable inroads into sex-atypical occupations.

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Table I: Percentage Female and Change in Percentage Female in 1970 Sex-Equitable Occupations, 1970-1990[a]

1980 Occupational Title (code)	*1970 % Female*	*1980 % Female*	*1990 % Female*	*1970-1990 % Change*	*Number in labor force in 1990[b] (percent of labor force)*
inhalation therapists (098)	54.0	56.3	61.5	7.5	65,061
therapists n.e.c. (105)	49.1	67.9	72.5	23.4	69,776
english teachers (143)	46.7	54.3	59.4	12.7	23,642
secondary school teachers (157)	48.9	56.3	57.0	8.1	617,212
educational and vocational counselors (163)	45.3	54.4	62.1	16.8	234,640
recreation workers (175)	45.3	67.3	70.0	24.7	48,069
religious workers, n.e.c. (177)	46.5	57.0	56.5	10.0	90,757
legal assistants (234)	53.4	69.3	76.6	23.2	251,549
information clerks, n.e.c. (323)	45.8	78.3	78.0	32.2	169,046
eligibility clerks, social welfare (377)	51.7	82.4	89.9	38.2	48,848
supervisors, food prep and service (433)	51.9	57.4	56.9	5.0	268,860
nursery workers (484)	**51.8**	**46.0**	**48.0**	**-3.8**	**34,118**
bookbinders (679)	**50.9**	**56.3**	**51.6**	**0.7**	**29,605**
miscellaneous printing machine operators (737)	**46.4**	**52.7**	**53.8**	**7.4**	**49,159**
cement/gluing machine operators (753)	48.3	47.5	39.0	-9.3	30,801
packaging/filling machine operators (754)	46.5	53.0	59.2	12.7	259,446
folding machine operators (765)	51.1	59.8	64.0	12.9	19,218
photographic process machine operators (774)	**51.3**	**53.7**	**51.6**	**0.3**	**95,939**
assemblers (785)	47.1	49.2	42.9	-4.2	1,493,508
hand mold/cast/forming (787)	53.5	31.7	27.5	-26.0	25,620
product inspectors/checkers/examiners (796)	**50.2**	**51.5**	**52.6**	**2.4**	**605,152**
All Integrated Occupations					4,530,026 (3.8)
Total Labor Force					117,880,000

Notes:

[a]Bold indicates the occupation had a sex-equitable distribution in both 1970 and 1990.

[b]Weighted N

Source: U.S. Census Microdata, 1970, 1980,1990 (U.S. Bureau of the Census, 1972; 1983; 1993)

Table II: Percentage Female and Change in Percentage Female in 1990 Sex-Equitable Occupations, 1970-1990[a]

1980 Occupational Title (code)	*1970 % Female*	*1980 % Female*	*1990 % Female*	*1970-1990 % Change*	*Number in labor force in 1990[b]*	*(percent of labor force)*
FEMINIZING OCCUPATIONS[c]					9,086,148	(7.7)
administrators, and officials, public administrators (005)	16.7	33.1	45.6	28.9	494,097	
financial managers (007)	20.8	31.2	46.0	25.2	629,569	
personnel managers (008)	24.1	36.1	49.2	25.1	272,950	
administrators, education and related fields (014)	26.4	38.2	52.3	25.9	610,825	
managers, property and real estate (016)	32.8	40.6	46.2	13.4	395,309	
postmasters and mail superintendents (017)	22.7	42.7	47.2	24.5	39,788	
accountants and auditors (023)	22.5	38.3	52.6	30.1	1,567,516	
other financial officers (025)	20.2	44.9	51.5	31.3	663,921	
wholesale and retail buyers (029)	32.7	44.8	53.2	20.5	223,529	
purchasing agents and buyers, n.e.c. (033)	14.7	31.2	45.2	30.5	243,036	
business and promotion agents (034)	8.7	32.6	45.6	36.9	35,121	
physician's assistants (106)	N/A	36.0	47.7	12.5	24,060	
psychology teachers (118)	27.2	41.4	49.4	22.2	4,349	
social science teachers, n.e.c. (126)	24.5	33.7	47.8	23.3	780	
art, drama, and music teachers (137)	29.1	46.7	53.0	23.9	20,928	
education teachers (139)	25.4	36.1	47.0	21.6	1,380	
sociologists (168)	25.9	44.3	49.9	24.0	2,164	
social scientists, n.e.c. (169)	26.3	40.7	46.4	20.1	20,690	
authors (183)	31.8	45.7	48.6	16.8	99,798	
technical writers (184)	29.1	35.2	50.2	21.1	75,771	
designers (185)	35.4	49.6	54.9	19.5	582,342	
painters, sculptors, craft-artists and artist printmakers (188)	39.0	47.7	52.1	13.1	202,372	
artists, performers and related workers, n.e.c. (194)	29.6	38.1	48.5	18.9	88,948	
editors and reporters (195)	39.8	48.8	51.0	11.2	263,318	
real estate sales occupations (254)	33.4	44.6	50.4	17.0	771,187	
advertising and related sales occupations (256)	28.9	41.7	50.8	21.9	169,250	
dispatchers (359)	17.6	31.5	46.8	29.2	200,486	
production coordinators (363)	20.9	44.5	46.7	25.8	249,352	
weighers, measurers, checkers and samplers (368)	27.8	38.2	47.4	19.6	77,515	
protective services, n.e.c.(427)	33.9	42.7	46.0	12.1	52,898	
bartenders (434)	22.4	43.2	48.9	26.5	312,549	
guides (463)	31.6	58.0	53.0	21.4	39,766	
inspectors, agricultural products (489)	N/A	19.0	46.4	12.5	4,504	
tailors (667)	33.8	40.0	46.7	12.9	54,825	
bakers (687)	26.9	40.1	45.3	18.4	148,952	
production samplers and weighers (798)	16.9	41.5	47.3	30.4	10,461	
bus drivers (808)	27.9	45.3	47.9	20.0	431,842	

1980 Occupational Title (code)	*1970 % Female*	*1980 % Female*	*1990 % Female*	*1970-1990 % Change*	*Number in labor force in 1990*[b]	*(percent of labor force)*
STABLE OCCUPATIONS[d]					1,738,774	(1.5)
statisticians (067)	41.3	48.5	50.7	9.4	30,955	
duplicating machine operators (345)	58.5	61.3	51.2	-7.3	27,268	
mail clerks, except postal service (356)	41.1	47.7	49.5	8.4	201,364	
miscellaneous food preparation occupations (444)	59.7	56.3	50.8	-8.9	665,214	
nursery workers (484)	**51.8**	**46.0**	**48.0**	**-3.8**	**34,118**	
bookbinders (679)	**50.9**	**56.3**	**51.6**	**0.7**	**29,605**	
miscellaneous printing machine operators (737)	**46.4**	**52.7**	**53.8**	**7.4**	**49,159**	
photographic process machine operators (774)	**51.3**	**53.7**	**51.6**	**0.3**	**95,939**	
production inspectors, checkers and examiners (796)	**50.2**	**51.5**	**52.6**	**2.4**	**605,152**	
MASCULINIZING OCCUPATIONS[e]					1,935,670	(1.6)
sales support occupations, n.e.c.(285)	78.6	52.6	49.8	-28.8	18,248	
peripheral equipment operators (309)	80.1	59.5	54.6	-25.5	5,878	
mail preparing and paper handling machine operators (346)	71.2	61.2	52.5	-18.7	6,082	
cooks, including short order (436)	65.7	56.1	47.5	-18.2	1,905,462	
All Integrated Occupations					12,760,592	(10.8)
Total Labor Force					117,880,000	

Notes:

[a]Bold indicates the occupation had a sex-equitable distribution in both 1970 and 1990.

[b]Weighted N

[c]Feminizing occupations are occupations in which the percent female increased by at least 10% from 1970 to 1990.

[d]Stable occupations are occupations in which there is less than a 10% change in the percentage female in either direction.

[e]Masculinizing occupations are occupations in which the percent female decreased by at least 10% from 1970 to 1990.

Source: U.S. Census Microdata, 1970, 1980,1990 (U.S. Bureau of the Census, 1972; 1983; 1993)

Table III: A Descriptive Snapshot of Sex-Equitable Occupations, 1970-1990

	1970			1980			1990		
Variables	Feminizing[a]	Stable[b]	Masculinizing[c]	Feminizing	Stable	Masculinizing	Feminizing	Stable	Masculinizing
Percent female	25.2	57.8	75.7	39.5	58.2	72.9	49.6	55.9	59.9
Mean age (in years)	44.4	45.1	47.0	41.7	43.4	44.5	41.4	41.6	40.9
Percent white	94.6	86.1	75.0	90.7	81.1	71.0	87.5	74.4	66.0
Percent w/ at least college degree	30.3	2.7	1.3	39.4	5.3	2.9	45.0	7.6	4.1
Percent currently married w/spouse	79.6	71.5	66.5	72.6	68.5	65.6	67.6	61.3	58.5
Percent wage and salary worker	64.6	82.7	69.0	65.3	82.4	69.1	66.2	83.9	79.8
Percent in core industries	19.7	37.7	3.3	18.5	36.0	2.2	17.9	32.1	2.1
Percent in periphery industries	34.2	29.5	52.6	36.1	29.6	55.6	36.4	37.3	69.4
Percent below poverty level	2.9	6.3	11.4	3.0	5.8	11.3	2.6	7.9	14.2
Percent in full-time work[d]	69.8	53.2	40.7	70.9	58.1	40.7	71.9	59.5	46.0
Percent foreign born	6.5	7.9	9.9	7.0	10.2	14.0	8.9	15.5	22.5
Percent working at home	3.9	0.8	1.8	3.2	0.5	0.7	4.6	0.8	0.8
Percent Hispanic[e]	2.6	5.7	6.0	3.5	7.2	7.7	4.8	11.6	13.4
Percent U.S. citizen	98.3	97.0	96.5	97.4	95.1	92.5	96.4	91.0	86.0
Percent speaking English "not well" or "not at all"[f]	n.a.	n.a.	n.a.	0.8	3.3	5.5	1.1	5.9	9.3

Notes:

[a] Feminizing occupations are occupations in which the percent female increased by at least 10% from 1970 to 1990.

[b] Stable occupations are occupations in which there is less than a 10% change in the percentage female in either direction from 1970 to 1990.

[c] Masculinizing occupations are occupations in which the percent female decreased by at least 10% from 1970 to 1990.

[d] For 1980 and 1990, full-time refers to percent of workers working 50 or more weeks and usually working 35 or more hours per week in the previous year. In 1970, full time refers to percent of workers working 50 or more weeks and 35 or more hours during the 1969 reference week.

[e] The variable labeled Hispanic is measured slightly differently in the 1970, 1980 and 1990 Census. For 1970 the variable refers to Spanish descent, for 1980 the variable refers to Spanish origin, and for 1990 the variable refers to Hispanic.

[f] This variable is not included in the 1970 Census.

Source: U.S. Census Microdata, 1970, 1980,1990 (U.S. Bureau of the Census, 1972; 1983; 1993)

Table IV: Variables Used in Multinomial Logistic Analyses, 1990

Variables	**Coding**
Personal Characteristics	
Sex	1=female, 0=male
Age	In years
Race dummies	
White (reference)	1=inclusion in category, 0=otherwise
Black	"
Other	"
Hispanic	1=Hispanic (Mexican, Puerto Rican, Cuban, other Hispanic), 0=not Hispanic
U.S. citizen	1=born in U.S. or outlying areas, naturalized, or born abroad of American parents, 0=not a citizen
Poor English ability	1= speaks English not well or not at all, 0=speaks only English or speaks very well or well
Foreign born	1=foreign born, 0=born in U.S. state
Poverty	1=below poverty line, 0=at or above poverty line
Marital status dummies	
Married, spouse living at home (reference)	1=inclusion in category, 0=otherwise
Formerly married/separated	"
Never married	"
Education dummies	
Less than high school	1=inclusion in category, 0=otherwise
High school degree/some college	"
At least college degree (reference)	"
Work-related characteristics	
Full-time work[a]	1=full-time worker, 0=otherwise
Professional/managerial work[b]	1=professional or manager, 0=otherwise
Periphery industries[c]	1=location in periphery industry, 0=otherwise

Notes:

[a] "Full-time" refers to percent of workers working 50 or more weeks and usually working 35 or more hours per week in 1989.

[b] Occupational categories coded 0=Technicians, Administrative Support, Clerical; Sales; Service; Farming, Forestry, and Fishing; Precision Production, Craft; Operators and Laborers.

[c] Periphery industry is defined using Hodson's (1983) categorization, as adapted by Katharine Donato and Patricia Roos (see Roos and Reskin, 1996). Other industries coded 0=oligopoly, core, core utilities, periphery utilities, trades, public administration/U.S. Postal Service.

Table V: Multinomial Logit Regression Odds Ratios[a] Predicting Pathway to Sex Equity, 1990

	Model 1		Model 2	
Predictor variables[b]	Masculinizing vs. Feminizing	Stable vs. Feminizing	Masculinizing vs. Feminizing	Stable vs. Feminizing
Intercept	.018	.032	.108	2.46
Sex (1=female)	1.29	1.05	1.63	1.30
Age	.991	.997	.989	.992
Race				
Black	2.22	1.79	2.22	1.42
Other	1.90	1.50	1.92	1.53
Hispanic (1=Hispanic)	.822	1.14	.876	1.11
Citizen (1=citizen)	.678	.749	.703	.714
Poor English abilitiy (1=poor English)	2.04	1.93	1.58	1.70
Foreign born (1=foreign born)	1.40	.998 [ns]	1.39	1.11
Poverty (1=below poverty line)	2.86	1.74	1.60	1.32
Marital status				
Formerly married/separated	1.07	1.06	.990	1.02
Never married	1.47	1.38	1.37	1.45
Education				
Less than high school degree	53.5	23.3	11.8	4.66
High school degree/some college	12.6	7.77	4.76	2.62
Full-time work (1=full-time)			.720	1.15
Professional/mgr work (1=prof or mgr)			.000	.010
Periphery industries (1=periphery)			1.79	.455

Notes: All logit coefficients were significant at p=.003 or less, except for the foreign born coefficient for stable vs. feminizing.

[a] Odds Ratios were calculated using the formula e^{b}.

[b] Reference categories for dummy variables (race=white; marital status=married and living with spouse; education=at least college deg

Source: U.S. Census Microdata, 1990 (U.S. Bureau of the Census, 1993)

Table VI: Percent Female, Mean Earnings (in dollars), and Earnings Ratios in Sex-Equitable Occupations by Pathway and Sex, 1970-1990

	Percent Female	Mean Earnings: Total ($)	Mean Earnings: Men ($)	Mean Earnings: Women ($)	Earnings Ratios (F/M)	Unweighted N's
1970 Sex-Equitable Occupations	37.7	8,051	9,792	4,672	47.7	105,387
Feminizing	25.2	9,725	11,181	5,393	48.2	71,878
Stable	57.8	5,064	7,325	3,413	46.6	21,045
Masculinizing	75.7	3,443	5,948	2,638	44.4	12,464
1980 Sex-Equitable Occupations	46.1	14,854	18,847	9,753	51.7	369,650
Feminizing	39.5	17,042	21,005	10,967	52.2	271,035
Stable	58.2	10,457	14,858	7,299	49.1	58,878
Masculinizing	72.9	6,447	10,036	5,111	50.9	39,737
1990 Sex-Equitable Occupations	51.6	26,862	34,030	19,852	58.3	519,036
Feminizing	49.6	30,899	38,963	22,692	58.2	395,541
Stable	55.9	16,569	21,463	12,714	59.2	63,154
Masculinizing	59.9	11,169	14,850	8,707	58.6	60,341

Source: U.S. Census Microdata, 1970, 1980,1990 (U.S. Bureau of the Census, 1972; 1983; 1993)

Appendix A: A Descriptive Snapshot of Sex-Equitable Occupations by Sex, 1970-1990

1970

Variables	FEMINIZING[a] Men	FEMINIZING[a] Women	STABLE[b] Men	STABLE[b] Women	MASCULINIZING[c] Men	MASCULINIZING[c] Women
Mean Age (in years)	44.1	45.2	44.4	45.7	45.0	47.6
Percent White	94.8	94.1	87.1	85.3	69.6	76.8
Percent w/ at least College degree	34.3	18.2	4.8	1.2	2.7	0.9
Percent Married w/ Spouse	85.4	62.4	78.8	66.2	71.7	64.8
Percent Wage and Salary	64.2	65.9	86.6	79.9	78.2	66.0
Percent Core Industry	21.4	14.4	41.8	34.7	6.2	2.3
Percent Periphery Industry	31.2	43.0	30.2	29.0	69.7	47.1
Percent below poverty level	2.4	4.4	5.0	7.3	9.3	12.0
Percent in full-time work[d]	76.3	50.6	69.0	41.6	61.7	34.0
Percent foreign born	6.6	6.0	9.5	6.7	24.4	5.3
Percent working at home	2.6	7.6	0.8	0.9	1.3	1.9
Percent Hispanic[e]	2.7	2.1	6.9	4.8	11.6	4.1
Percent U.S. citizen	98.2	98.5	96.2	97.6	91.1	98.2
Percent speaking English "not well" or "not at all"[f]	n.a.	n.a.	n.a	n.a	n.a	n.a

1980

Variables	FEMINIZING Men	FEMINIZING Women	STABLE Men	STABLE Women	MASCULINIZING Men	MASCULINIZING Women
Mean Age (in years)	42.4	40.7	42.2	44.2	40.1	46.1
Percent White	91.1	90.2	81.2	81.1	62.2	74.3
Percent w/ at least College degree	47.8	26.5	8.5	3.0	6.1	1.7
Percent Married w/ Spouse	78.2	63.9	72.3	65.8	63.4	66.4
Percent Wage and Salary	63.8	67.7	87.3	78.9	81.6	64.4
Percent Core Industry	21.2	14.5	37.0	35.2	4.1	1.5
Percent Periphery Industry	32.8	41.2	30.0	29.4	77.8	47.4
Percent below poverty level	2.5	3.7	4.8	6.4	11.2	11.3
Percent in full-time work	79.4	58.0	72.5	47.8	61.3	32.9
Percent foreign born	7.3	6.7	11.7	9.1	33.4	6.8
Percent working at home	2.6	4.1	0.5	0.5	0.9	0.7
Percent Hispanic	3.7	3.2	8.5	6.3	15.2	4.9
Percent U.S. citizen	97.2	97.7	93.9	95.9	80.9	96.9
Percent speaking English "not well" or "not at all"	0.8	0.6	4.2	2.6	14.2	2.3

	1990					
	FEMINIZING		STABLE		MASCULINIZING	
Variables	Men	Women	Men	Women	Men	Women
Mean Age (in years)	42.4	40.3	40.3	42.7	36.9	43.6
Percent White	88.0	87.0	73.8	74.8	57.4	71.7
Percent w/ at least College degree	54.2	35.6	10.7	5.0	6.3	2.6
Percent Married w/ Spouse	72.2	62.8	61.5	61.2	53.6	61.8
Percent Wage and Salary	64.2	68.1	86.5	81.9	87.9	74.3
Percent Core Industry	20.2	15.6	32.0	32.2	2.8	1.6
Percent Periphery Industry	34.6	38.3	40.7	34.6	86.9	57.8
Percent below poverty level	2.3	2.9	7.6	8.1	13.0	15.0
Percent in full-time work	78.5	65.1	68.8	52.1	59.0	37.3
Percent foreign born	9.6	8.2	18.5	13.2	38.0	12.0
Percent working at home	4.0	5.1	0.9	0.7	0.7	0.9
Percent Hispanic	5.1	4.5	14.0	9.7	20.9	8.4
Percent U.S. citizen	95.8	96.9	88.2	93.2	75.4	93.1
Percent speaking English "not well" or "not at all"	1.2	0.9	7.8	4.4	16.0	4.8

[a] Feminizing occupations are occupations in which the percent female increased by at least 10% from 1970 to 1990.

[b] Stable occupations are occupations in which there is less than a 10% change in the percentage female in either direction from 1970 to 1990.

[c] Masculinizing occupations are occupations in which the percent female decreased by at least 10% from 1970 to 1990.

[d] For 1980 and 1990, full-time refers to percent of workers working 50 or more weeks and usually working 35 or more hours per week in the previous year. In 1970, full time refers to percent of workers working 50 or more week and 35 or more hours during the 1969 reference week.

[e] The variable labeled Hispanic is measured slightly differently in the 1970, 1980 and 1990 Census. For 1970 the variable refers to Spanish descent, for 1980 the variable refers to Spanish origin, and for 1990 the variable refers to Hispanic.

[†] This variable is not included in the 1970 Census.

Source: U.S. Census Microdata, 1970, 1980,1990 (U.S. Bureau of the Census, 1972; 1983; 1993)