

# IS GENDER EQUALITY ADVANCING IN THE WORKPLACE?<sup>†</sup>

## Women Production Workers: Low Pay and Hazardous Work

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The sex segregation of the labor market is reflected in the underrepresentation of women in production jobs. In the last decade, although women have slowly entered male-intensive and better-paid production jobs, they have found greater wage inequities and more hazardous working conditions than in their traditional nonproduction jobs. Women generally have been concentrated in health-hazardous industries (such as apparel, chemical, leather, and electrical equipment), and there is significant evidence of institutional and historical forces that operate to keep them in the lower-paid production jobs within these and other industries. This has encouraged research showing that jobs women hold are differentially evaluated; this paper provides evidence of unequal rewards paid to women in hazardous jobs. Average differences in this and other job and personal characteristics between men and women are used to explain the earnings gap. A segmented labor market model is also used to derive earnings-gap explanations and to explore the importance of segment location in determining job rewards for similarly qualified workers.

### I. Conceptual Framework

During the last decade, various studies have considered the market's performance in equalizing the net advantages between jobs (Charles Brown, 1980). Neoclassical economists assert in this literature that workers are

induced into accepting jobs with disagreeable or hazardous conditions by the compensating wage differentials that employers must offer to meet competition. But due to market inadequacies that include imperfect hazard information, constrained job mobility, and underestimation of injury and disease costs, the evidence on compensating wage differentials remains inconclusive.

Segmentation theorists credit wage differentials and disparities in working conditions to the existence of not one but many labor markets, to which some workers are confined—not allocated. In effect, the neoclassical assumption that all workers are able to enforce “implicit contracts” of tradeoffs between working conditions and wages cannot hold; instead, the balance of power established between workers and their employers will resolve the question of whether working conditions degenerate, improve, or are compensated for. And bargaining power is necessarily influenced by particular historical and institutional factors. Thus, in an economy where good jobs are scarce, segmentation theorists find that otherwise qualified workers are excluded from primary-sector jobs, jobs where internal labor markets operate to promote equity and due process in the administration of work rules, high wages and uniform working conditions (David Gordon et al., 1982). This exclusion is particularly felt by women and minorities, who face strong institutional restrictions on their job choice.

While theorists disagree as to the source of labor market segmentation, many agree that primary and secondary markets are distinguished by firm characteristics and the job systems they employ. Segmentation analysis separates the primary from the secondary market on the basis of both industrial and occupational characteristics, where the meth-

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od of categorization relies on the characteristics of jobs and not those of workers.<sup>1</sup> Production jobs in the independent primary segment are thought to provide incentives to stability in the form of high pay with some job security and rewards to general skills (this includes professional, technical, and craft jobs). Jobs in the subordinate primary segment (including blue-collar jobs in core industries) are thought to provide decent wages and advancement possibilities through internal labor market operations. Secondary jobs (including many operative and laborer jobs in peripheral industries) are thought to provide few incentives to stability because of insecure employment, low wages, few promotional possibilities, and no shelter from competitive market forces (Gordon et al.).

In previous research (1983), I found that production workers in high-risk industries and occupations receive, on average, an equalizing differential. Yet using a segmentation analysis, I found that not all personal and job characteristics are equally rewarded across segments and that compensating differentials for hazardous work are segment-specific. My earlier study also found evidence that worker-perceived hazards are most prevalent in the secondary sector, where 50 percent of all women workers are located. In fact, among all workers, women in this segment most often cited these problem-creating hazardous exposures. Thus, the question arises: do women in hazardous jobs receive compensatory wages? Further, what is the relative importance of labor-segment location in determining compensatory pay for hazardous work?

## II. Compensatory Wages for Women and Men

To specify better how the differential evaluation of jobs women hold encourages earnings inequities, I used a regression analysis to test the compensatory wage theory

using a random sample of 528 production workers. Data sources used for this investigation include the 1977 *Quality of Employment Survey (QES)* and the *Dictionary of Occupational Titles (DOT)*, from which I constructed an occupation-level hazard measure (*HAZARD*). This measure represents the mean score on six environmental conditions (cold, heat, wet, hazards, atmospheric conditions, noise) associated with the worker's occupation, as given by the *DOT*. I calculated the annual income earned on the job by each full-time worker and used the natural logarithm of this variable as the dependent variable in the earnings equation, where independent variables were worker and job characteristics.

The first regression analysis tested the alternative hypothesis that, *ceteris paribus*, there exists a positive wage differential between those workers in hazardous jobs and the wages of all other workers. The evidence shows that workers in jobs with higher mean *HAZARD* scores do indeed receive a compensatory differential. This same test was made for both men and women workers.

Table 1 shows that for men, the *HAZARD* coefficient is significant and positive. Yet the women's sample shows that women production workers earn less the more hazardous the job they hold! Comparisons between the variable means for the two samples show that the mean score on the *HAZARD* measure for women is 43 percent that of men's and, insofar as women are less likely to work in more hazardous jobs, an insignificant coefficient on this measure would seem plausible. But the unexpected finding of negative earnings premiums in hazardous jobs discredits the alternative hypothesis. In contrast to men, women are not rewarded for choosing hazardous jobs. Assuming that the women in the sample are homogeneous apart from their aversion to risk, this finding may show that women are unable to successfully exploit the same bargaining opportunities presented to men by the work environment. In Table 1, the union membership variable is significant for men but not for women, perhaps reflecting a weaker union effect on earnings within those industries where women hold more hazardous jobs.

<sup>1</sup>To avoid truncation bias, segmentation models must not base their classification of workers into segments on worker attributes such as gender, race or earnings. See Robert Buchele (1984, p. 216) for a discussion of cause vs. effects.

TABLE 1—MEANS AND REGRESSION COEFFICIENTS  
FOR WOMEN AND MEN<sup>a</sup>

Independent Variables <sup>b</sup>		Women	Men
HAZARD <sup>c</sup>	.50	-.2104 <sup>c</sup> (.0823)	1.16 (.0271)
FRINGE BENEFITS	3.56	.1093 <sup>d</sup> (.0262)	4.35 (.0127)
HAS JOB SECURITY	.62	.2164 <sup>c</sup> (.0924)	.72 (.0526)
UNION MEMBER	.41	.1911 (.1119)	.47 (.0476)
OVERTIME <sup>f</sup>	.15	.1565 (.1179)	.33 (.0502)
JOB REQUIRES SKILL	.38	.0011 (.0918)	.68 (.0517)
SUPERVISOR	.06	-.0359 (1.689)	.29 (.0535)
N (number of observations)		72	333
R <sup>2</sup>		.630	.309
ln (annual earnings)		8.763	9.396

<sup>a</sup>Dependent variable = ln (1977 annual earnings). The random sample of 528 production workers is taken from the 1977 QES, representing workers in #401-785 and #821-824 in 1970 Census codes. Individuals with missing observations on variables entering the earnings equations are not included.

<sup>b</sup>Other independent variables used in the earnings equation are age; education; minority member; job is physically or mentally demanding; job has bad physical working conditions; repetitive work; and job tenure. These measures are described more fully in my earlier study.

<sup>c</sup>Significant at .05 level.

<sup>d</sup>Significant at .01 level.

<sup>e</sup>Mean score for six conditions.

<sup>f</sup>Minimum 10 hours per week.

In the QES, women production workers earned on average \$6,398 yearly and men, \$12,043. Using a decomposition procedure, we can investigate how much of the male-female earnings differential can be attributed to measured average differences in job and personal characteristics between genders. Estimations are obtained by subtracting the female mean for each independent variable from the male mean, multiplying the difference by the male regression coefficient, and expressing this product as a fraction of the differences in ln earnings between women and men. Of particular interest, we find that average differences between men and women on the HAZARD measure accounted for 8 percent of the earnings gap. Yet the standardized regression coefficients show that

the negative impact of this measure on women's earnings is almost twice the positive impact observed on men's, putting the reliability of this gap explanation in question. In general, the evidence reflects the structural constraints placed on women's pay opportunities, with job and personal characteristics cumulatively explaining only 35.2 percent of the earnings gap.

### III. Compensatory Wages within Segments

Using the same data as was used for the regression analysis for men and women, the production-worker sample was assigned to either the primary labor market (further disaggregated into the independent primary professional and technical segment, the independent primary craft segment, and the subordinate primary segment), or the secondary labor market.<sup>2</sup> A breakdown of mean HAZARD scores by segment shows them to be highest in the independent-craft and subordinate primary segments for both men and women. It is these workers in particular who should be earning compensating pay differentials. But separate earnings regressions by segment show that for men, secondary workers are the only group to receive a compensating differential, despite their comparatively lower HAZARD scores. This reflects the greater wage dispersion among men in the secondary sector, where external market forces determine earnings. Due to an insignificant sample size, separate earnings regressions for women could only be made for secondary workers; the results show a negative return on HAZARD, although the insignificance of the coefficient is assumed to reflect sample-size limitations. However, large earnings differences between men and women in the primary sector allows us to conjecture that women here also may realize negative returns for hazardous work because of their location in nonunionized entry-level jobs and their inability to gain the same

<sup>2</sup>The model used here (see Gordon et. al.) relies on an industry-by-occupation analysis of job characteristics, distinguishing between core and peripheral industries and those jobs which do encourage skill application.



internal labor market benefits enjoyed by men.

By comparing female-male earnings ratios within segments, I found that women in traditionally male-intensive jobs in the primary sector generally find greater pay discrimination. Women realize their greatest equity (64 percent of male earnings) in professional and technical jobs in the independent primary segment, although they represent only a scant 4 percent of all workers. Interestingly enough, women do almost as well (60 percent of male earnings) in the more female-intensive secondary sector. Yet women in craft and semiskilled jobs located in the independent primary craft and subordinate primary segments respectively earn only 43 percent and 53 percent of men's earnings.

An estimate of the cost of women's differential allocation to labor segments indicates that *ceteris paribus*, if men and women were distributed proportionally across labor segments, men would decrease their earnings by 4.9 percent and women would decrease their earnings by 7.6 percent.<sup>3</sup> An important implication of this finding is that to merely move women out of the secondary segment where they are concentrated and into the more male-intensive jobs in the primary sector would not increase their earnings unless their pay reflected an unbiased assessment of the true, relative worth of these jobs (see Robert Buchele).

Lastly, segment breakdowns of earnings differentials cumulatively explain much less of the overall gender gap because of the greater homogeneity of job and personal characteristics within segments.<sup>4</sup> But more of

the gap is explained in the secondary sector where the structure of competition largely determines the worth of women's jobs.

#### IV. Conclusions

Although compensatory wage theory stipulates that workers who assume greater risk on the job will receive additional earnings (other things being equal), my findings show that the gender composition of jobs influences the pay rates in cases of hazardous work. In general, men receive compensatory wages and women do not; specifically, women earn less the more hazardous their occupation. Women's concentration in the secondary market, where workers' bargaining power is weak, does not satisfactorily explain this, since the evidence shows that women in the more hazardous primary-sector jobs, where bargaining power is greater, generally have lower female-male earnings ratios than are found in the secondary sector. This reflects the unequal bargaining power between women and men regardless of labor-segment location. In contrast to men, the structural location of women's jobs is not as important in determining general pay rates, or (by assumption) particular compensatory pay differentials for hazardous work.

#### REFERENCES

- Barry, Janis, "Compensating Pay Differentials in Hazardous Work Situations: A Labor Market Segmentation Analysis," unpublished doctoral dissertation, New School for Social Research, 1983.
- Brown, Charles, "Equalizing Differences in the Labor Market," *Quarterly Journal of Economics*, February 1980, 2, 113-34.
- Buchele, Robert, "Sex Discrimination and Labour Market Segmentation," in F. Wilkinson, ed., *The Dynamics of Labour Market Segmentation*, New York: Academic Press, 1984.
- Gordon, David, Edwards, Richard and Reich, Michael, *Segmented Work, Divided Workers*, New York: Cambridge University Press, 1982.

<sup>3</sup>An adjusted earnings level (i.e., the antilog of the weighted average of the segment-specific ln earnings, where the weights are number of workers expected under the condition of no differential assignment to segments on the basis of gender) is compared to actual antilogged mean earnings for each gender.

<sup>4</sup>Weighting the three segment-specific gap explanations by the percentage of workers in each segment shows 22 percent of the total gap is explained for 92 percent of the sample. Earnings-gap estimates for primary professional and technical workers could not be made, but it is unlikely that this would change the total gap sum.