

Sex and Interoccupational Wage Differences in Israel

IN ISRAEL, as in other countries, the data indicate that women earn less than men.¹ The average hourly earnings of women in Israel is approximately 80 per cent that of men; the average weekly earnings of married women 70 per cent.²

The effect of sex on earnings has been studied from two analytically distinguishable, although empirically related, perspectives. The first focuses on sex-linked characteristics of the worker and analyzes the way in which these result in lower earnings for women. Most market studies of earnings differentials between the sexes have been written from this perspective. They interpret the earnings gap as reflecting the combined effects of sex differences in human capital resources, preferences, and discrimination.³ However, controlling for occupation and industry greatly reduces the size of the unexplained earnings gap usually attributed to discrimination. The differential distribution of the sexes among occupations and industries then emerges as an important factor underlying the observed differences

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¹For the experience in Israel, see Tamar Ben Yosef, *An Analysis of the Factors Leading to Wage Differences Between Men and Women* (Jerusalem: Falk Institute for Economic Research, 1971) and Reuben Grunau, *Israeli Married Women: An Economist's Point of View*, unpublished paper (Jerusalem: 1974). Representative discussions of the situation in the United States may be found in Morley Gunderson, "The Influence of the Status and Sex Composition of Occupations on the Male-Female Earnings Gap," *Industrial and Labor Relations Review*, XXXI (January, 1978), 217-226, and Dixie Somers, "Occupational Rankings for Men and Women by Earnings," *Monthly Labor Review*, XCVII (August, 1974), 34-51. For data on countries other than the United States, see Margaret Power, "Women's Work is Never Done—by Men; A Socio-Economic Model of Sex Typing in Occupations," *Journal of Industrial Relations*, XVII (September, 1975), 225-238 (Australia); Gail W. Lapidus, "Occupational Segregation and Public Policy: A Comparative Analysis of American and Soviet Patterns," in Martha Blaxall and Barbara Reagan, eds., *Women and the Workplace: The Implications of Occupational Segregation* (Chicago, Ill.: University of Chicago Press, 1976), pp. 119-136 (Russia); Martha Darling, *The Role of Women in the Economy, A Summary Based on Ten National Reports* (Paris: Organization for Economic Cooperation and Development, 1975) (synthesizes data from Australia, Belgium, Canada, Denmark, Finland, France, Italy, Japan, Sweden, and the United States); Helge Pross, *Die Arbeitsbedingungen der Erwerbstätigen Frauen der Sechs Mitgliedstaaten der Europäischen Gemeinschaft, Deutschland* (European Common Market, Department of Social Affairs, 1972) (Germany); Evelyne Sullerot, *L'Emploi des Femmes et Ses Problèmes dans les Etats Membres de la Communauté Economique Européenne* (European Common Market, Department of Social Affairs, 1970) (France, Belgium, and Italy); Brian Chiplin and Peter J. Sloan, *Sex Discrimination in the Labor Market* (London: MacMillan, 1976) (Britain).

²Ben Yosef, *op. cit.*, p. 37 and Grunau, *op. cit.*, p. 96.

³See, for example, Jacob Mincer and Solomon Polachek, "Family Investment in Human Capital Earnings of Women," *Journal of Political Economy*, Supplement 82 (March/April, 1974), 76-108; Victor Fuchs, "Male-Female Differentials in Hourly Earnings," *Monthly Labor Review*, XCIV (May, 1971), 9-15; Somers, *op. cit.*; Darling, *op. cit.*; and Ben Yosef, *op. cit.*

in pay levels.⁴ Accordingly, the second perspective, and the one adopted in this paper, focuses on the sex predominance of the occupation and examines its influence on earnings.⁵

The sex proportion of an occupation is a structural variable on the basis of which male earnings in male occupations may be compared with those of male earnings in female occupations and similarly between female earnings in each sex type of occupation. The analysis focuses on *interoccupational earning differentials* rather than *intraoccupational* differences. Since there is little reason to believe that women in male occupations behave differently from women in female occupations (and vice versa), it may be assumed that the variables which explain income differences between the sexes do not apply to interoccupational differences within a sex category. The observed differences in male and female workers' earnings may then be attributed to characteristics of the occupation, among them its sex identification. These occupational characteristics encourage the selective recruitment of each sex according to its particular preferences and human capital resources, thus re-enforcing the persistence of these occupational characteristics and the occupation's image as more appropriate for one sex than for the other, as well as perpetuating the relative wage level.

This study uses recent data from the Israeli labor situation to assess the impact of occupational sex typing on pay levels. There is no effort to systematically explain interoccupational wage differentials, other than to show their consistent relationship to sex proportions. The results support the hypothesis that occupational segregation is an important contributant to unequal earnings between men and women.

Research Design

The data are based on the 1972 Israel Population Census—the country's only source of information on the sex composition and educational and income levels for 360 occupations.⁶

Sex composition. The total list of occupations ($n = 352$) was divided into female, male, and nonsegregated occupations according to the proportion of each sex in the occupation relative to its proportion in the labor force. While there have been attempts to characterize female occupations,⁷ there is no existing theory which permits the identification of quantitative critical points at which an occupation becomes male, female, or nonsegregated. Therefore, the strategy used here was guided by the rationale of random distribution. If women in Israel were uniformly

⁴See Isabell V. Sawhill, "The Economics of Discrimination Against Women: Some New Findings," *Journal of Human Resources*, VIII (Summer, 1973), p. 384; Ronald Oaxaca, "Sex Discrimination in Wages," in Orley Ashenfelter and Albert Rees, eds., *Discrimination in Labor Markets* (Princeton, N.J.: Princeton University Press, 1973), p. 147; and Judith A. Malkiel, "Male-Female Pay Differentials in Professional Employment," *American Economic Review*, LXIII (September, 1973), 693-705.

⁵Data accumulated in Western countries indicate a relationship between the sex proportion of an occupation and its earnings. U.S. Department of Labor, Women's Bureau, *The Earnings Gap Between Men and Women* (Washington, D.C.: 1976).

⁶*Employed Persons in Annual Labor Force, 1972*, Israel Central Bureau of Statistics, Monthly Bulletin, Supplement XXVII, no. 7, Jerusalem, July 1976, pp. 76-103.

⁷Valerie K. Oppenheimer, *The Female Labor Force in the United States*, Population Monograph Series No. 5 (Berkeley, Calif.: University of California Press, 1970).

distributed among all occupations, in 1972 they would have comprised 31.2 per cent of each, and it could then be argued that sex had no influence on occupational recruitment. As this was not the case, it is necessary to identify the upper and lower limits of the nonsegregated category (i.e., those occupations in which the proportion of each sex is approximately equal to their proportion in the labor force).

The choice of cut-off points, while theoretically arbitrary, seemed to have face validity. Using 31.2 as a focal point, the lower limit was determined by subtracting 20 per cent from the female labor force ($31.2\% - 6.2\% = 25\%$), the upper limit by adding 20 per cent of the male labor force ($31.2\% + 13.7\% = 45\%$). Thus, female occupations were defined as those in which at least 46 per cent of the participants are women; male occupations as those in which less than 25 per cent are women; and nonsegregated occupations as those with between 25 and 45 per cent women. (The alternative of extending the focal point of 31.2 by 20 per cent in each direction would have ignored the fact that the distribution of occupations is strongly skewed to the left, with the great majority having a much greater proportion of males.⁸)

Income. The data on income are in the form of gross average hourly income from all jobs engaged in as an employee divided by total number of hours worked. The data control for part-time work, but are affected by overtime for which the hourly rate is higher, as well as by other nonoutput related premiums widely used in 1972 for increasing pay above the hourly wage specified in industry-wide labor contracts. Moreover, the figures do not include indirect income such as car, telephone, travel, and food allowances which comprise a sizeable proportion of total earnings in some occupations. Since men tend to work more overtime hours, earn more premiums, and get more indirect benefits than women, valid *intraoccupational* comparisons of earnings by sex were not possible.

Educational level of the occupation. In general, education has the strongest direct effect on hourly earnings. It may mediate the relationship between the sex proportion of the occupation and income. Educational level of the occupation is here defined as the median years of formal schooling of those employed in the occupation. All occupations were divided into six categories based on median years of schooling. The rationale for selecting the cut-off points between educational categories was their significance for a person's social status and labor market opportunities. The categories are as follows: (a) 0-7.9—eight years of schooling indicated completion of compulsory education in 1972; (b) 8-8.9—eight-nine years indicated some schooling above the minimum; (c) 9-10.5—ten and a half years was the median years of schooling of the female labor force; (d) 10.6-11.9—twelve years indicated completion of high school; (e) 12-13.9—twelve to fourteen years indicated some post-high school training, but not a college degree; and (f) 14+—the fourteen plus category was too small to permit the distinction between undergraduate and post-graduate education.

Results

Sex proportion of the occupation and income. Male occupations have

⁸This strategy is justified only when the female labor force participation rate approximates 50 per cent, as is the case in the U.S.

TABLE 1
DIFFERENCE IN MEAN INCOME OF MALE AND FEMALE
OCCUPATIONS BY EDUCATIONAL LEVEL OF OCCUPATION

Educational level (years)	Male occupations			Female occupations		
	Number of occupations	Mean income	Per cent above mean ^a	Number of occupations	Mean income	Per cent above mean
0-7.9	65	3.55*	63.1	13	2.76*	00.0
8-8.9	42	3.90**	69.0	10	2.76**	00.0
9-10.5	48	4.90**	52.1	06	3.24**	00.0
10.6-11.9	38	5.29**	73.7	10	3.91**	00.0
12-13.9	17	7.13**	70.6	13	5.50**	46.2
14+	30	7.42*	66.7	14	6.91*	35.7
Total	240		64.6	66		20.0

*p ≤ .05; **p ≤ .01.

^a Refers to the per cent of occupations by sex in each educational level whose mean earnings are above the mean earnings for all the occupations within the same educational level.

In all tables significance level is based on T test of distribution of means.

higher earnings than female occupations. The difference is significant and consistent for each educational category (see Table 1).

Another way of viewing the same problem is revealed in Table 2. Here we see that the proportion of male occupations with earnings above the mean income for all occupations within the educational level is almost twice as large as that below the mean. In three educational categories the ratio is even larger than 2/1. Among the female occupations in four of the six educational categories not a single occupation earns above the mean. In the two remaining categories, the number below the mean is larger than that above it, with the smallest difference occurring for the 12-14 years of education category. While the ratio of all the occupations above the mean to those below is 1.8/1 for male occupations, it is .2/1 for female occupations. That is, only one-fifth of all female occupations earn above the mean.

The data permit an examination of the hypothesis that since women make fewer educational investments, occupations with a heavy concentration of females tend to be less profitable. Comparing the median years of education of women in female occupations with that of all employees in male occupations earning above the mean,

TABLE 2
RELATIVE DIFFERENCE IN MEAN EARNINGS BETWEEN
NONSEGREGATED OCCUPATIONS, MALE OCCUPATIONS, AND FEMALE OCCUPATIONS

Educational level (years)	̄ Income for males		̄ Income for females		̄ Income for males		̄ Income for females	
	N.S.O. ^a	F.O.	N.S.O.	F.O.	N.S.O.	M.O.	N.S.O.	M.O.
0-7.9	3.23	3.12	1.86	2.46***	3.23	3.58**	1.86	2.25***
8-8.9	3.24	3.18	2.34	2.36	3.24	3.95**	2.34	2.85*
9-10.5	4.37	3.23**	3.06	3.21	4.37	4.93	3.06	2.90
10.6-11.9	4.75	5.00	3.11	3.53*	4.75	5.58**	3.11	4.44***
12-13.9	5.40	5.70	4.46	5.28*	5.40	7.26**	4.46	5.50*
14+	7.80	7.28	6.51	6.38	7.80	8.90**	6.51	6.87

*p ≤ .10; **p ≤ .05; ***p ≤ .01.

^aN.S.O. = nonsegregated occupations; F.O. = female occupations; M.O. = male occupations.

it is evident that at every level (except 14+ years) the education of women in female occupations earning below the mean income within the educational level is greater than that of male occupations earning above the mean. This is not the case for men in female occupations. In other words, the extent of formal education does not explain the lower earnings in female occupations.

These findings seem to support the contention that the lower earnings of women relative to men is not merely a matter of individual differences such as seniority and merit considerations, but is in some way related to the categorical treatment of women institutionalized in a separate labor market.⁹ As Blau suggests:¹⁰

We may replace the familiar statement that women earn less because they are in low paying occupations with the statement that they [and men] earn less because they are in women's jobs.

Nonsegregated occupations and earnings. Sullerot examined wage levels by occupational and industrial sector in France, Belgium, and Italy and found that for women of equal qualifications, salaries were higher where male and female workers were relatively equally represented than in industries or occupations where women were numerically dominant.¹¹ This is not the case in Israel, however. Instead, the data indicate that the proportion of occupations earning above the mean to those below the mean in the nonsegregated occupations is very similar to that for the female occupations, .18/1 and .20/1, respectively.

Table 2 examines the relative difference between mean earnings for the same sex in the nonsegregated occupations, and those in the male and female occupations. It reveals that the difference between the mean income for males in nonsegregated occupations and that of males in male occupations is significant for each educational level except the 9-10.5 years of schooling. Contrastingly, the difference between males' earnings in female occupations and their earnings in nonsegregated occupations is *not* significant, except in the 9-10.5 years category.

For women the findings are not consistent, but the difference in their earnings levels is significant more frequently in the male occupations (occurring in four educational categories) than in the female ones (occurring in only three of the categories). With respect to earnings, therefore, the nonsegregated occupations behave somewhat more like female occupations.

Relationship between sex of occupation and earnings for each sex. A pragmatic conclusion which may be drawn from the above analysis is that women are economically better off in male occupations. This assumes, however, that women actually benefit from the advantages accrued by male occupations. We examined the validity of this assumption by analyzing the earnings for each sex within male and female occupations.

The analysis (see Table 3) supports the hypothesis that men in male occupations earn significantly more than men in female occupations. The findings for women, however, are again not consistent. In only two of the six educational categories do women in male occupations earn significantly more than women in female occupa-

⁹Francine D. Blau and Carol L. Jusenius, "Economists' Approaches to Sex Segregation in the Labor Market: An Appraisal," in Blaxall and Reagan, *op. cit.*, pp. 181-200.

¹⁰Francine D. Blau, "Women's Place in the Labor Market," *American Economic Review*, LXII (May, 1972), 166.

¹¹Sullerot, *op. cit.*

TABLE 3
 MEAN INCOME FOR MEN AND WOMEN BY SEX LABEL AND EDUCATIONAL LEVEL OF OCCUPATION

Educational level (years)	Mean income for men		Mean income for women	
	Male occupation	Female occupation	Male occupation	Female occupation
0-7.9	3.58	3.12**	2.25	2.46
8-8.9	3.95	3.18**	2.85	2.36*
9-10.5	4.93	3.23**	2.90	3.21
10.6-11.9	5.58	5.00*	4.44	3.53**
12-13.9	7.26	5.70**	5.50	5.28
14+	8.90	7.28*	6.87	6.38

* $p < .05$; ** $p < .01$.

Two separate T tests were performed to determine the significance of difference for men's earnings by sex of occupation and for women's earnings by sex of occupation.

tions. At the lower schooling levels (two categories), women in female occupations earn more than they do in male occupations, an anomalous finding which would seem to contradict the hypothesis that women benefit from their association with male occupations.

Further analysis of the data reveals that within most educational categories women tend to be recruited to the lower income male occupations. This may mean that they are underrepresented in those occupations with more advantageous earnings. With one exception the mean income for male occupations employing women is less at each educational level than the mean income for total male occupations at that level. At the 10.6-11.9 educational level, the mean incomes are virtually the same. The differences are statistically significant at the lowest (0-7.9) and highest (14+) levels. The implication is that women's entry into male occupations is in itself no assurance of higher income. There may be forces channeling women away from the higher earning male occupations within each educational level.

Summary

An examination of the influence of the sex identification of an occupation on earnings reveals that: (1) male occupations earn more than female occupations; (2) nonsegregated occupations tend to be more similar in earnings to female than to male occupations; (3) the majority of female occupations earn below the mean for occupations at each level of education; the inverse is true for male occupations; (4) men in female occupations earn less than they do in male occupations; and (5) women in male occupations do not consistently earn more than women in female occupations at comparable levels of education. Our data indicate that they tend to gravitate toward the lower earning male occupations.

These findings support the hypothesis that in Israel, as elsewhere, occupational segregation is an important factor underlying earning differentials between women and men. Wage differentials are the result not only of differences in human capital resources, but also of unequal opportunities within the occupational structure. The division of labor by sex does not cause inequality—rather it permits the perpetuation of a system of social relations in which the work women do is allocated inferior status and economic rewards. The social forces which produce and sustain this reality are worthy of further investigation.