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EMPLOYMENT DISCRIMINATION: AN ORGANIZATIONAL MODEL

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Empirical findings have indicated that gender-based discrimination is manifested during the assignment of workers to organizational positions. Since the position occupied has a major effect on a worker's salary, discriminatory processes in assigning positions should be incorporated into a salary discrimination model. Organizational variables were more important than individual variables in explaining both legitimate salary differentials between the men and women studied and gender-based salary discrimination.

Numerous studies have concluded that women are discriminated against in the labor market: they receive lower wages than men with equal skills and attributes. Cain (1986) summarizes these studies, most of which have split the total, or observed, wage differential between men and women into two portions: the "legitimate" portion resulting from differences in characteristics known to affect worker's productivity, and the "illegitimate" portion resulting from gender-based wage discrimination. Researchers have estimated the effect of the discriminatory component by subtracting the legitimate portion from the total observed wage differential.

This model, however, is seriously flawed. In estimating the two portions, most studies have focused on individual characteristics, such as education and labor market experience, while holding constant organizational characteristics that may also determine wages—such as job, hierarchical position, and departmental location—or ignoring them completely. The assignment of workers to organizational positions, however, may also be subject to discriminatory practices. If that is the case, holding organizational characteristics constant by comparing men and women who hold similar organizational positions cannot allow researchers to capture the wage impact of discrimination that occurs when people are assigned to those positions. In other words, conventional models may significantly underestimate the full extent of wage discrimination against women.

CONCEPTUAL FRAMEWORK

During the last decade, organizational analysis has proved indispensable for revealing dimensions of gender inequality, most notably, job segre-

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gation, or the division of jobs into men's and women's categories (e.g., Blau, 1977). Taking into account that men and women work not only in different occupations, but also under different job titles within organizations, Bielby and Baron (1986) demonstrated that the extent of gender-based job segregation in nearly 300 California organizations was much more pervasive than previous research focusing on occupations only had suggested. Furthermore, men and women not only hold different job titles in organizations, but also occupy different hierarchical positions, with men dominating the managerial and supervisory ranks and women concentrated in the lower organizational ranks (Wolf & Fligstein, 1979a,b).

Yet investigators have rarely taken the implications of such findings for research on gender-based salary differentials into account. To the extent that organizational variables have been included in models of wage discrimination, they have been treated as control variables. Another stream of research was triggered by the "comparable worth" literature. A situation of comparable worth occurs when two or more different jobs are equivalent in value to an employer. Advocates of comparable worth argue that in such situations the jobs should be paid equally. Recent work on comparable worth has attempted to study the effects of organizational variables on gender-based employment segregation (e.g., Hartmann, 1987; Roos, 1981) but has not integrated segregation practices and the salary determination process into a single model of employment discrimination. The few studies that have included organizational variables have treated them as given and labeled as discrimination only that portion of the observed wage gap between men and women not due to their different individual characteristics *and* organizational positions. For instance, if men and women with equal education, experience, and other relevant individual characteristics hold different jobs within an organization, and as a result receive unequal wages, such studies would conclude that the wage differential between the two groups is the result not of discrimination but rather of their having different job titles. Thus, the wage differences between people holding different organizational positions are linked to the legitimate portion of the wage differential between men and women.

To be sure, for wage determination the characteristics of an individual's position in an organization are no less important than the person's own "human capital" (cf. Baron, 1984: 57–59). Organizational positions in large organizations are often determined by a set of bureaucratic rules and not by labor market forces of supply and demand. In such organizations, which are called "internal labor markets," an employee's job assignment, organizational tenure, hierarchical level, and organizational location are the direct outcome of managerial decisions. Job assignments determine wage grade ladders and associated working conditions. Organizational location, or position in a unit such as a division or a department, may affect a worker's exposure to organizational rewards and career opportunities. Those who work close to a company's headquarters, for example, may enjoy better working conditions than those employed in peripheral divisions simply because the former

have more information regarding organizational policies and better access to rewards and opportunities. Likewise, access to high-level positions is determined by promotion processes, which are probably the major avenue through which organizations affect earnings inequality, since they create formally stratified social structures (Scott, 1987; Simon, 1957). Organizational rank also constitutes a significant resource in the process of accumulating power, money, and prestige. The mechanisms by which promotion opportunities are distributed are part of an organization's human resources management practices (Baron, 1984; Granovetter, 1981).

Thus, an accurate estimation of wage discrimination must take into account (1) the extent to which the managerial process of assigning people to organizational positions is discriminatory and (2) the effect of such discriminatory practices on wages. Regarding the first question, previous research in various organizational settings has suggested that organizational hiring and promotion policies favor men over women (e.g., Baron, 1984; Cannings, 1988; Kanter, 1977).[1] Hence,

> *Hypothesis 1a: Organizations discriminate against women when assigning people to high-level positions.*
>
> *Hypothesis 1b: Unmasking organizational discrimination in assigning positions will increase the proportion of the overall wage gap between men and women accounted for by gender-based wage discrimination.*

The next question is whether more discrimination is associated with organizational or with individual attributes. The organizational component consists of discrimination occurring when companies assign positions and evaluate them. Such evaluations can result in differential pay for men and women in similar positions. The individual component consists of paying women less than men for individual attributes. There are reasons to believe that discrimination associated with organizational attributes is more prevalent than that associated with individual attributes. Because they face an environment hostile to discrimination, it is increasingly unacceptable for large organizations to pay different wages to men and women holding identical positions, especially if those workers have similar individual characteristics. In such cases it would be relatively easy to prove that the organizations indeed engaged in discriminatory practices. In contrast, organizational discrimination in assigning positions is more difficult to unmask and challenge. Assigning men and women of similar characteristics to different

[1] Research results in this area have been, however, inconclusive. On the one hand, Olson and Becker (1983) suggested that women often must satisfy higher standards than men to gain promotion and Cannings (1988) obtained similar results. On the other hand, several firm-level analyses have found that women enjoyed better promotion opportunities than men (Hartmann, 1987; Lewis, 1986; Stewart & Gudykunst, 1982; Tsui & Gutek, 1984). But when these differences are adjusted for levels of human capital and job characteristics, women lose their promotion advantage.

positions associated with wide wage differentials may play a major role in creating the observed gender-based wage gap. Thus,

> *Hypothesis 2: Organizational variables account for a larger portion of the discriminatory component of the total wage gap between men and women than individual variables.*

To be sure, the process of assigning men and women to different jobs, ranks, and departments is not completely discriminatory and is legitimate when it stems from differences in relevant individual characteristics. We also know that wages in large organizations, and particularly in those operating as internal labor markets, are determined more by the characteristics of a position than by individual characteristics. Hence, the nondiscriminatory dimensions by which workers are assigned to various organizational positions should have a major impact on wages.

> *Hypothesis 3: Organizational variables primarily explain the legitimate portion of the wage gap between men and women.*

Testing these hypotheses required a model integrating organizational processes into the widely used labor market model of wage discrimination. Such a model must not assume that the existing division of jobs and positions between men and women is a given. Rather, it should be designed to reveal discriminatory processes that regulate the attainment of jobs and positions. However, before I present such a model, a technical discussion of the conventional labor market model and its shortcomings for estimating the organizational component of gender-based wage discrimination is needed.

MODELS OF GENDER-BASED DISCRIMINATION

The Conventional Model

The conventional wage discrimination model can be given as

$$y = \alpha p + \beta z + e, \tag{1}$$

where

y = wages,
p = productivity,
α = productivity's coefficient,
z = gender,
β = gender's coefficient,

and

e = an error term.

In this model, wage discrimination against women is present if z is coded as 1 = male, 0 = female, and the gender coefficient is positive, or when men

receive an unexplained wage premium over women with productivity differences controlled.

Most researchers engaged in empirical research aimed at estimating gender discrimination have in fact studied the following relationship:

$$y = aq + bz + u, \tag{2}$$

where

q = estimated productivity,
a = estimated productivity's coefficient,
b = gender's coefficient,

and

u = an error term.

Since systematic performance scores (p) are generally unobtainable, researchers are forced to use human capital proxies of productivity instead (q). While admittedly crude, this is a well-established practice in sociological and economic research; a replaces α in the empirical investigations, and b, the gender coefficient, provides an estimate of β. The fact that human capital variables are an imperfect predictor of actual productivity might bias the estimate of salary discrimination (b). However, the direction and magnitude of such bias depend on much that is beyond the scope of this research. Goldberger (1984) extensively discussed this issue. It should also be noted that wage discrimination studies have generally estimated separate equations for men and women. Appendix A provides the method for deriving estimated salary discrimination when two separate equations are used.

As discussed at the outset of this paper, a major weakness of the conventional model is that it compares the wages paid to men and women possessing similar attributes and holding similar positions. Since acquisition of attributes and positions may itself reflect discrimination, holding them constant (q in Equation 2) may yield biased estimates for wage discrimination.

Some economists have noted these biases. Blau and Ferber (1987) for example, referred to the possibility that salary discrimination may affect women's decisions not to acquire salary-related attributes since their returns on such attributes are low. They called such a possibility a "feedback effect" and concluded by stating that "estimation of feedback effects is an extremely important area which has been neglected in previous work" (1987: 320). Bayer and Astin (1975) and Hoffman (1976) were aware of the possibility that rank itself may reflect discrimination and chose to omit rank from a group of individual determinants of scientists' salaries. As expected, their estimates of salary discrimination against women were larger than those obtained with rank included among the salary determinants. Omitting rank might be better than simply controlling for gender differences in rank because it points at possible discriminatory treatment in promotion. However, omission of salary-related variables results in model misspecification and

cannot be recommended as a way for solving the problem of controlling variables that contain discrimination.

The Organizational Model

My proposed model integrates discriminatory processes associated with organizational wage determinants, such as position in an organizational hierarchy, into the wage discrimination model. This model has two steps. First, it estimates gender-based discrimination in the acquisition of organizational rank:

$$r = C' T + dz + v, \tag{3}$$

where

r = organizational rank,
T = a vector of rank determinants,
C = a vector of their coefficients,
d = discriminatory practices against women seeking to enter certain organizational levels,

and

v = an error term.

In terms of my first hypothesis, I expected d to be positive: ceteris paribus, men are more likely than women to attain high ranks.

In this model's second step, rank (Equation 3) is replaced with a variable indicating expected organizational rank and based on the assumption that the process of acquiring organizational rank is free of discrimination. I first estimated the rank acquisition of men. An estimate of rank acquisition free of gender-based discrimination could then be calculated for an entire population by applying the coefficients derived for men to both men and women. The predicted rank represents the rank of each individual if male and female employees would have been promoted according to the same rules—the rules by which men are promoted.

$$y = q^* + g(\hat{r}) + bz + u, \tag{4}$$

where

q^* = productivity, not including rank,
$\hat{r}$ = predicted rank calculated for each worker on the basis of the rank coefficients for men,

and

g = the effect of rank acquired in the absence of discrimination on wages.

In terms of the second hypothesis, I expected the wage discrimination estimate (b) derived from the new model (Equation 4) to be larger than the estimate derived from the conventional model (Equation 2). Likewise, I expected the new model to enable testing Hypotheses 2 and 3 by comparing the contribution of organizational and individual attributes to b and q^*. This can be accomplished by decomposing each one of the wage gaps—legitimate

and discriminatory—into two portions: one resulted from organizational (internal) factors and the other from individual (external) factors.

METHODS

Setting and Data

Testing the model specified in Equation 4 required detailed data on individual and organizational characteristics of workers in one or more large firms. I obtained such data during 1987 from a large Israeli corporation specializing in advanced telecommunication technology and diagnostic systems and encompassing the entire production process—research, development, planning, and manufacturing. Accordingly, the corporation employs an extremely heterogeneous work force comprising engineers, professionals, technical workers, clerks, production workers, and support staff. Using data obtained from an Israeli rather than an American firm should not limit the analysis because the processes of gender-based employment discrimination operating in the Israeli labor market are similar to those operating in the United States (Izraeli & Gaier, 1979; Semyonov & Kraus, 1983).

The firm operates seven different functional divisions located in the central part of the country. Some 21 percent of its 5,087 employees are women. The head office employs 9 percent of the corporate work force, and half of those people are women. Data were obtained from the organization's personnel files, and records of all workers employed by this corporation were used in the analysis.

The corporation studied operates as an internal labor market. Workers are organized into five distinct job clusters (Dunlop, 1957), each a separate domain within which an employee may be upgraded, transferred, or laid-off (Doeringer, 1967). In this firm, 33 percent of the work force is employed in research and engineering jobs, 12 percent in support jobs (e.g., personnel, clerical), 25 percent in technical jobs, 27 percent in production, and 3 percent in other professional jobs (e.g., law, accounting).

Mobility across clusters is extremely low, partially because the skills and training required in each cluster differ and partially because each has a separate collective contract. All workers in each cluster are represented by a union, and most of the bargaining revolves around salaries, benefits, and work rules. Workers are assigned to clusters mainly at the hiring stage, with assignments made according to individuals' qualifications, training, and previous occupations.

Each cluster has from 10 to 15 wage grades along which employees progress according to seniority, education, and general performance evaluations made by their superiors. In addition, the firm's managerial ladder is open (at least formally) to all employees irrespective of the job cluster to which they belong. Promotion to managerial positions is company-wide and does not take place separately within each cluster. As a result, promotions are not subject to the collective bargaining process and are left to managerial discretion.

Thus, workers belonging to different clusters can occupy identical managerial levels. The managerial ladder consists of five levels ranging from group head up to division head. All managers are recruited from within the company, and new managers almost invariably begin at the first level. Promotion along the hierarchical ladder is based on managerial discretion and on company rules, such as contribution to the firm.

The total salary of each employee is thus a function of organizational and individual variables. The main organizational attributes are seniority and the job cluster and hierarchical level in which a worker is situated. The main individual attributes are education and performance, which is measured by general, informal evaluations by superiors.[2] The combination of seniority, education, and performance appraisal determines the wage grade within a cluster in which a worker is situated. Thus, employees can obtain pay increases within job clusters and organizational ranks by moving along the wage grades associated with each cluster on the basis of their individual characteristics.

Variables

Table 1 presents descriptive statistics for the variables used in the study for all the company's employees and for men and women separately. Appendix B gives operational definitions of the variables. The table includes data on the dependent variable, total monthly salary, and on two groups of independent variables. The first group comprises individual variables, or external labor market variables, including the human capital variables: age, a proxy for labor market experience; age squared, for detecting change in a positive relationship between age and salary beyond a certain age; and a set of four dummy variables indicating educational level, with the high school level serving as the omitted category to which all the other educational categories are compared. Gender, marital status, and number of children are also included in the individual variables.

The second group consists of organizational, or internal labor market, variables and includes tenure in the organization, a major determinant of rewards in companies operating as internal labor markets; a set of dummy variables indicating five hierarchical levels, with nonmanagers as the omitted category to which all the other five categories are compared; a set of six dummy variables for organizational divisions, with the headquarters division as the omitted category; and another set of four dummy variables for job clusters: service, clerical and support jobs; research and engineering; tech-

[2] This firm did not systematically report performance appraisals. The unavailability of performance information could be a major problem in the study of promotion processes since small differences in performance may result in significant differences in rank attained. To the extent that the portions of performance its proxies do not capture covary with gender, the absence of performance ratings could bias the results of this study. However, I have no evidence that such covariance occurs.

TABLE 1
Means and Standard Deviations

	All Workers		Men		Women	
Variables	**Means**	**s.d.**	**Means**	**s.d.**	**Means**	**s.d.**
Wages	1,528.1	540.3	1,652.0	501.4	1,071.1	419.7
Gender	0.79	0.41				
Marital status	0.91	0.28	0.93	0.25	0.84	0.36
Children	1.8	1.1	1.9	1.1	1.7	1.1
Age	38.3	8.0	39.2	8.0	34.8	6.7
Age squared	1,528.9	680.8	1,603.8	699.2	1,252.6	522.7
Post–high school	0.28	0.45	0.31	0.46	0.17	0.38
B.A.	0.22	0.42	0.23	0.42	0.18	0.38
M.A.	0.09	0.29	0.10	0.30	0.05	0.23
Ph.D.	0.06	0.23	0.07	0.25	0.02	0.13
Tenure	10.4	6.5	10.9	6.8	8.4	4.5
Full-time	99.8	2.7	99.9	2.0	99.3	4.4
Level 1	0.16	0.36	0.17	0.37	0.11	0.31
Level 2	0.10	0.30	0.12	0.33	0.03	0.17
Level 3	0.03	0.17	0.04	0.19	0.01	0.03
Level 4	0.002	0.14	0.002	0.16	0	0
Level 5	0.004	0.06	0.005	0.07	0	0
Rank	1.5	1.0	1.6	1.0	1.2	0.5
Division 1	0.16	0.36	0.17	0.37	0.12	0.32
Division 2	0.12	0.33	0.13	0.33	0.10	0.30
Division 3	0.16	0.37	0.18	0.38	0.09	0.29
Division 4	0.17	0.38	0.17	0.37	0.18	0.38
Division 5	0.10	0.29	0.09	0.29	0.12	0.33
Division 6	0.20	0.40	0.20	0.40	0.19	0.39
Job cluster 1	0.12	0.32	0.04	0.20	0.39	0.49
Job cluster 2	0.33	0.47	0.38	0.49	0.14	0.35
Job cluster 3	0.25	0.43	0.27	0.44	0.19	0.39
Job cluster 4	0.27	0.44	0.29	0.45	0.20	0.40
N	5,087		4,002		1,085	

nical; and production jobs. The omitted job cluster is professional jobs. The first job cluster includes mainly jobs typically filled by women, such as clerical jobs; the second cluster has more "men's" than "women's" jobs, mainly engineering and research jobs; and the other groups are mixed as far as gender-type is concerned.

Two final variables are a continuous measure of hierarchical level (rank) and a measure of working hours.

Estimation Models

Ordinary-least-squares and two-stage least squares regression analyses were used to estimate the various models in this study. For each model, I estimated the discrimination level twice, once for all employees, with gender included in the equation, and once for men and women separately. I then decomposed the observed gap into an explained portion and an unexplained, or discriminatory, portion. Three empirical models were estimated, corresponding to Equations 2, 3, and 4.

First, I studied a salary model in which the dependent variable examined was monthly salary. One equation included only individual-level determinants, a second only organizational determinants, and the third, both groups of salary determinants (see Equation 2). This was done in order to estimate the contribution of within-organization and individual factors to both the explained and unexplained portions of the gender-based salary gap as estimated by the conventional model.

In the second estimated model, hierarchical rank served as the dependent variable. The purpose of this estimation procedure was twofold. First, I tested Hypothesis 1a to determine the extent of discrimination involved in the process of placing employees in managerial positions (Equation 3). Second, I used results obtained with the rank equation for men to calculate a predicted rank value for the women employed in the firm.

The third model examines the effect of hierarchical level on salary while taking into consideration discriminatory processes affecting promotion to high levels (Equation 4) by including the predicted rank value for women. This model allowed tests of Hypotheses 1b, 2, and 3.

Two explanatory comments are necessary here. First, the equation for rank includes all the independent variables presented in the full equation for wages, plus a set of dummy variables representing the organizational divisions to which employees belong. A division in the corporation under study is practically an "establishment" (Granovetter, 1984), a plant in which hiring, promotion, and firing decisions are made autonomously. I included this variable in the rank equation owing to its special importance for the two major organizational processes under study, wage determination and promotion.

The company's divisions not only had different promotion practices but also different sizes. Researchers have found that establishment size is associated with promotion opportunities (Baron, 1984; Rosenbaum, 1979) and with attributes of organizations and industries (Baron, 1984; Kimberly, 1976;

Villemez & Bridges, 1988). Moreover, establishment size may mediate the relationship between human capital variables and promotion processes (Stolzenberg, 1978). Salary practices, on the other hand, which are rooted in labor contracts, were hypothesized to be uniform within job clusters and invariant across divisions.

Second, attention should be drawn to differences between labor contracts in the United States and Israel. Whereas an American contract in a multiplant company is often concluded at a plant level, an Israeli agreement is company-wide and is worked out separately for each job cluster. As a result, uniform wage agreements are made within job clusters, irrespective of organizational divisions. Thus, both the rank and wages equations may be seen as estimates of a single model in which rank is estimated initially,[3] organizational divisions serve as instruments in identifying the equation, and the predicted value of an employee's hierarchical level is derived from using the rank equation of men for calculating rank of both gender groups. These predicted values replace the actual organizational positions in the second step, when a new wages equation is estimated.

RESULTS

Hypothesis 1a predicts gender-based discrimination in the determination of rank. Table 2 shows results of the regression analysis testing this hypothesis. It reveals a coefficient of 0.3 for gender, representing the advantage that men enjoy over women in the attainment of high ranks due not to the men's individual characteristics but merely to their gender. Since the overall gap in rank between men and women is 0.4 (Table 1), it appears that a full three-quarters of the observed gap between the two groups in organizational rank is due to discrimination. The remaining hypotheses deal with the implications of such organizational discrimination in assignment to positions for wage discrimination. Table 3 summarizes the relevant results of the regression analyses presented in Tables 2, 4, and 5. The total observed wage gap between men and women in the organization is \$580.90.[4] Results based on the conventional wage model, which ignores discrimination in rank, suggest that 68 percent of this gap is legitimate and 32 percent is discriminatory (Appendix A explains how these figures were calculated). In contrast, results using the integrated organizational discrimination model, which takes into account prior discrimination in rank, indicate that 36 percent of the gap is discriminatory and only 64 is legitimate. These results

[3] To examine whether the use of dummy variables rather than a continuous organization-level variable affected results, I estimated an additional equation for wages, substituting the rank variable for the five level variables and estimating separate equations for all workers, men, and women. The signs, magnitudes, and standard errors of the coefficients in these equations were almost identical to those presented in Table 4. The difference between the two gender coefficients estimated in the whole-group equations was less than 2 percent.

[4] The results of *t*-tests for differences in means between men's and women's averages on the dependent variables were significant: for wages, $t = 38.7$, and for rank, $t = 15.0$.

TABLE 2
Results of Regression Analysis for Rank[a]

	All Workers		Men		Women	
Variables	***b***	***t***	***b***	***t***	***b***	***t***
Age	0.03	2.08	−0.01	−0.30	0.02	0.14
Age squared	−0.001	−2.07	0.00	0.28	0.00	0.31
Post–high school	0.07	1.74	0.06	1.41	0.08	1.90
B.A.	0.31	4.30	0.07	0.84	0.10	1.48
M.A.	0.58	7.27	0.36	3.75	0.16	1.63
Ph.D.	0.84	9.64	0.56	5.51	0.19	1.42
Marital status	0.12	2.68	0.05	0.97	0.14	2.94
Children	0.02	1.67	0.05	3.98	−0.02	−1.12
Tenure	0.04	17.44	0.04	16.48	0.02	5.48
Job cluster 1	−0.55	−5.20	−0.93	−6.64	−0.65	−7.86
Job cluster 2	0.34	−4.80	−0.38	−4.03	−0.58	−8.66
Job cluster 3	−0.75	−7.30	−1.10	−8.68	−0.86	−9.66
Job cluster 4	−0.80	−7.64	−1.17	−9.17	−0.82	−9.29
Full-time	0.01	1.42	0.01	0.89	0.01	2.86
Division 1	−0.50	−10.53	−0.91	−14.73	0.01	0.17
Division 2	−0.37	−7.65	−0.80	−12.52	0.02	0.40
Division 3	−0.46	−10.08	−0.84	−12.72	−0.04	−0.75
Division 4	−0.41	−8.94	−0.81	−13.13	0.05	1.10
Division 5	−0.30	−5.65	−0.62	−9.10	-0.06	−1.23
Division 6	−0.38	−8.35	−0.76	−12.94	0.02	0.47
Gender	0.30	9.10				
Constant	−0.36	−0.69	−1.95	−2.69	0.64	1.39
N	5,087		4,002		1,085	
R^2	0.34		0.36		0.23	

[a] The results of *t*-tests are provided for readers who wish to make inferences to other organizations. These ratios were not used for hypothesis testing in the studied firm since data were gathered from all workers.

support Hypothesis 1b. It should be emphasized that a 4 percent increase in estimated discrimination is trivial neither statistically nor practically. The statistical importance of such an increase can be estimated with a test for the significance of the difference between the gender coefficients obtained in the whole-group full equation containing actual level (third column in Table 4) and the whole-group equation containing predicted level (first column in Table 5). This test yields a *t* of 2.15. Practically, an increase of 4 percent in the discriminatory portion of the gap constitutes a 12.5 percent increase (4/32), translated into $272 per year.

Hypotheses 2 and 3 predict that organizational rather than individual attributes will account for more of both the discriminatory and legitimate portions of the wage gap. Results again support the hypotheses. From examining Table 3 it can be seen that the legitimate portion of the total wage gap is 64 percent of the total, or $371.22 (right column, top panel). Of this amount, $292.80 is due to differences between men and women in the organizational variables (rank, job cluster, tenure, full-time status), and only

TABLE 3
Decomposition Results

Variables	Conventional Wage Model		Integrated Model	
	Value	Percentage	Value	Percentage
Observed wage gap	$580.90	100	$580.90	100
Total legitimate gap	$393.90	68	$371.22	64
Organizational	$291.33	50	$292.80	50
Individual	$102.57	18	$78.42	14
Total discriminatory gap	$187.03	32	$209.70	36
Different constant terms	−$518.50	−89	−$373.50	−64
Different organizational coefficients	$233.70	40	$490.60	84
Different individual coefficients	$471.83	81	$92.60	16

$78.42 is the result of differences in their individual characteristics[5] (age,[6] education, marital status, and having children).

Organizational variables also account for much of the $209.70 representing the discriminatory portion of the wage gap (right column, at the bottom).[7] The dollar value resulting from organizational discrimination in assigning women and men to different positions and in the returns from positions is five times the value resulting from discrimination based on individual characteristics ($490.60 vs. $92.60).

As the bottom panel of the left column of Table 3 shows, these results differ from results based on the conventional wage discrimination model with organizational position held constant. In such models, the dollar value of discrimination in returns to organizational position is only about half the

[5] Tenure and job cluster 1 are the major organizational variables explaining the gender salary gap in the corporation studied. The men had, on the average, longer company tenures than the women. This is a key difference in a firm operating as an internal labor market because tenure is highly rewarded in such markets. Few men were in cluster 1, containing clerical and support jobs: 4 percent, compared to 39 percent of the women. Since these are low-paying jobs, this large difference explains a substantial portion of the salary gap between the two gender groups.

[6] Among the workers studied, the men were on the average older than the women (39.2 years of age vs. 34.8) and thus entitled to higher salaries. But they also enjoyed higher returns for each additional year of age than the women ($63.81 vs. $48.06), a difference that contributes significantly to the estimated discriminatory wage gap. The difference between the returns obtained by men and women for each year of age could be due to the use of age as a proxy for labor market experience. Assuming that women's labor market careers are often interrupted, a situation in which men and women enjoy similar returns for each additional year of market *experience* would be reflected in a lower estimated *age* coefficient for the women.

[7] However, this portion of the gap cannot be attributed to the internal and external variables only, as can the legitimate gap. The discriminatory portion contains a third component, the difference in the intercepts of the equations calculated for men and women, which is impossible to attribute to a specific group of variables.

TABLE 4
Results of Regression Analyses for Wages[a]

	All Workers[b]			Men			Women		
Variables	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Age	111.67		58.15	122.75		63.81	91.84		48.06
	(19.57)		(10.11)	(17.77)		(9.85)	(7.89)		(5.13)
Age squared	−1.05		−0.57	−1.13		−0.59	−1.04		−0.54
	(−15.62)		(−8.59)	(14.16)		(−8.11)	(6.95)		(−0.68)
Post–high school	229.19		75.25	199.92		49.86	315.19		86.99
	(15.44)		(4.52)	(11.36)		(2.42)	(11.84)		(3.40)
B.A.	321.26		239.51	286.47		142.64	421.90		126.35
	(20.58)		(7.51)	(15.09)		(3.62)	(15.79)		(3.28)
M.A.	378.78		246.87	311.21		105.94	703.31		296.11
	(17.60)		(6.83)	(12.55)		(2.43)	(15.39)		(5.35)
Ph.D.	441.98		284.84	318.57		106.54	882.45		461.94
	(16.48)		(7.23)	(10.79)		(2.32)	(11.49)		(6.08)
Marital status	71.67		51.42	53.56		34.47	54.84		56.76
	(3.14)		(2.61)	(1.83)		(1.35)	(1.71)		(2.22)
Children	5.22		5.42	4.34		9.21	−1.34		−4.19
	(0.83)		(0.96)	(0.58)		(1.40)	(−0.94)		(−0.44)
Tenure		28.28	20.09		28.01	16.95		23.86	19.82
		(33.45)	(18.65)		(29.47)	(13.40)		(12.82)	(9.64)
Level 1		257.77	223.51		274.08	257.10		204.18	190.50
		(17.11)	(14.91)		(15.68)	(15.03)		(7.31)	(7.13)
Level 2		308.78	266.19		310.08	295.02		340.22	277.90
		(16.42)	(14.27)		(15.22)	(14.75)		(6.79)	(5.77)
Level 3		485.49	445.53		492.09	471.71		480.18	399.73
		(15.34)	(14.30)		(14.42)	(14.09)		(5.16)	(4.48)

TABLE 4 (continued)

Variables	All Workers[b]			Men			Women		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Level 4		635.76	591.40		639.78	613.49		713.82	668.00
		(16.64)	(15.64)		(15.98)	(15.51)		(2.63)	(2.58)
Level 5		827.91	818.52		786.68	800.21			
		(9.67)	(9.77)		(8.98)	(9.37)			
Job cluster 1		−489.58	−202.02		−486.76	407.80		−397.65	−280.99
		(−15.02)	(−4.40)		(−9.46)	(−6.57)		(−11.49)	(−5.98)
Job cluster 2		87.22	134.90		51.23	33.61		380.89	276.90
		(2.87)	(4.41)		(1.21)	(0.81)		(10.12)	(7.30)
Job cluster 3		48.20	288.29		35.66	131.11		128.43	188.80
		(1.51)	(6.49)		(0.79)	(2.31)		(3.34)	(3.73)
Job cluster 4		−79.04	206.92		−64.82	57.24		−163.74	−57.88
		(−2.47)	(4.57)		(−1.44)	(1.00)		(−4.35)	(−1.16)
Full-time		11.33	13.17		13.01	12.97		9.74	9.75
		(6.00)	(7.12)		(4.27)	(4.36)		(5.19)	(5.41)
Gender	348.07	241.49	196.81						
	(23.22)	(16.80)	(13.58)						
Constant	−1,682.18	−149.41	−1,905.51	−1,578.99	−64.94	−1,656.58	−1,029.05	−23.21	−1,138.08
	(−14.42)	(−0.79)	(−8.07)	(−11.18)	(−0.21)	(−5.14)	(−4.73)	(−0.12)	(−4.53)
N	5,087	5,087	5,087	4,002	4,002	4,002	1,085	1,085	1,085
R^2	0.43	0.56	0.58	0.28	0.43	0.45	0.41	0.60	0.64

[a] Values in parentheses are for *t*. A Chow test for a difference in the structures of the full equations for men and women yields an *F* of 10.7. This value is much larger than the critical value of $F_{19, 5047} = 1.9$ at the 0.01 level of significance.

[b] Model 1 contains individual variables; model 2, organizational variables; and model 3, both groups of variables.

TABLE 5
Results of Regression Analyses with Predicted Rank

	All Workers		Men		Women	
Variables	***b***	***t***	***b***	***t***	***b***	***t***
Age	68.20	10.90	54.26	7.63	53.28	5.18
Age squared	−0.70	−9.78	−0.50	−6.38	−0.61	−4.72
Post–high school	74.95	4.25	42.55	1.92	100.91	3.79
B.A.	260.46	7.45	112.58	2.59	139.22	3.43
M.A.	275.96	6.63	50.71	0.99	315.46	5.38
Ph.D.	317.91	6.82	36.82	0.66	479.49	5.92
Tenure	21.64	15.60	15.62	9.02	22.44	9.41
Marital status	66.53	3.16	30.24	1.10	76.29	2.83
Children	0.72	0.12	−12.04	−1.72	−10.29	−1.04
Job cluster 1	−201.81	−4.08	−406.57	−6.01	−359.51	−6.63
Job cluster 2	122.77	3.61	52.61	1.13	202.38	4.88
Job cluster 3	266.62	5.34	159.53	2.42	80.19	1.30
Job cluster 4	181.87	3.56	84.79	1.27	−156.74	−2.56
Full-time	14.36	7.35	13.24	4.19	11.11	5.94
Predicted rank[a]	102.47	4.69	214.38	7.41	18.62	0.67
Gender	241.70	15.83				
Constant	−2,346.48	−9.49	−1,695.59	−7.26	−1,322.09	−5.04
N	5,087		4,002		1,085	
R^2	0.53		0.38		0.62	

[a] Predicted rank for men and women is derived from the equation for men (see Table 2).

value of discrimination in returns to individual characteristics. This pattern is merely an artifact associated with the conventional model; since discrimination in assignment to position is not considered, individual variables—age, in particular—dominate the model and artificially capture the effect of such discriminatory assignments on wages.

DISCUSSION

The empirical results of the study are unequivocal: integrating organizational processes into a wage determination model reveals a degree of gender-based discrimination that is higher than that estimated by previous models. Further, organizational rather than individual variables account for most of both portions of the wage differential—the discriminatory and the legitimate.

These results have a number of implications. First, labor market research should not simply control for organizational attributes. Rather, researchers should study organizational attributes explicitly, looking for possible discriminatory practices, and incorporate those variables into models dealing with employment discrimination. A necessary condition for such an examination is the availability of detailed organizational data. This study demonstrates some advantages of such an approach and suggests new possibilities for the analysis of firm-level data in the study of discrimination. Second, differential remuneration for men and women who hold different organizational positions or perform different jobs is widely accepted (cf. Treiman & Hartmann, 1981). Proponents of the comparable worth argument should, however, consider the chances of men's and women's entering various jobs if they seek to price the effect of hiring discrimination by estimating its effect on wage differentials between men and women. The same criticism may be leveled at the method of pricing jobs according to the responsibility associated with them, which ignores the barriers faced by women who seek to attain responsible positions. Investigators using a conventional model for detecting salary discrimination will identify only employers who pay different salaries to equally situated workers. They are thus in effect searching for signs of overt discrimination—employers with a smoking gun in hand. The integrated organizational model of salary discrimination proposed here is a means of identifying covert discriminatory practices. When estimates of the effects of such practices are added to those of practices that are clearly defined as discriminatory, the overall estimate of salary discrimination increases.

Two caveats are in order. First, on the basis of several studies (e.g., Shenhav, 1991), I assumed that men and women are equally motivated to get into managerial positions. Furthermore, both the conventional and the organizational models of salary discrimination are based on the assumption that all salary-related variables are incorporated in the analyses and as a result, the illegitimate portion of the salary gap can be estimated by the residual remaining after subtracting the legitimate portion from the total gap

between men and women. However, it is possible that such assumptions are false and that women are less motivated than men to become managers, or that unmeasured variables are related to both salary and gender; for instance, men might show more job commitment than women. If this is the case, the results presented above could be biased.

Second, inability to generalize conclusions to large segments of the labor force is inherent in a firm-level research design. This and other limitations discussed previously should be kept in mind when considering this study's results and conclusions. On the other hand, there is no research strategy better suited to investigating the critical contribution of work organizations to market discrimination. The proposed research strategy and employment discrimination model may be applied to any organization. The results presented here merely demonstrate the advantages to be gained from such an approach.

Future research in this area should focus on two major issues. First, the organizational model of discrimination presented here should be applied to additional organizational processes, such as the assignment of workers to jobs, departments, and divisions and the process of hiring. For example, the percentage of women in this company's work force (21 percent) is approximately half the percentage of women in the national Israeli labor market. This might be an indication of gender-based access discrimination in the studied firm. Incorporating the hiring process into the organizational model of discrimination studied here might have yielded an even larger estimate of salary discrimination against women in the company. Second, this model should be studied in various types of organizations in order to identify structural influences on its effectiveness. It is possible that the policies, structure, culture, and goals of the organization studied affected this study's results. Similar studies in other organizations will enable isolation of the variance in discrimination resulting from interorganizational characteristics.

REFERENCES

Baron, J. N. 1984. Organizational perspectives on stratification. In R. H. Turner (ed.), ***Annual review of sociology,*** vol. 10: 37–69. Palo Alto, CA: Annual Reviews Inc.

Bayer, A. E., & Astin, H. S. 1975. Sex differentials in the academic reward system. ***Science,*** 188: 796–802.

Bielby, W. T., & Baron, J. N. 1986. Men and women at work: Sex segregation and statistical discrimination. ***American Journal of Sociology,*** 91: 739–799.

Blau, F. D. 1977. ***Equity pay in the office.*** Lexington, MA: Lexington Books.

Blau, F. D., & Ferber, M. A. 1987. Discrimination: Empirical evidence from the United States. ***American Economic Association Papers and Proceedings,*** 77: 316–320.

Cain, G. G. 1986. The economic analysis of labor market discrimination: A survey. In O. Ashenfelter & R. Layard (Eds.), ***Handbook of labor economics,*** vol. 1: 693–785. New York: Elsevier Science Publishers.

Cannings, K. 1988. Managerial promotion: The effects of socialization, specialization, and gender. ***Industrial and Labor Relations Review,*** 42: 77–88.

Doeringer, P. B. 1967. Determinants of the structure of industrial type internal labor markets. ***Industrial and Labor Relations Review,*** 20: 206–220.

Dunlop, J. T. 1957. The task of contemporary wage theory. In G. W. Taylor & F. C. Pierson (Eds.), ***New concepts in wage determination:*** 127–139. New York: McGraw-Hill.

Goldberger, A. S. 1984. Reverse regression and salary discrimination. ***Journal of Human Resources,*** 19: 293–318.

Granovetter, M. S. 1981. Toward a sociological theory of income differences. In I. Berg (Ed.), ***Sociological perspectives on labor markets:*** 11–47. New York: Academic Press.

Granovetter, M. S. 1984. Small is beautiful: Labor markets and establishment size. ***American Sociological Review,*** 49: 323–334.

Hartmann, H. I. 1987. Internal labor markets and gender: A case study of promotion. In C. Brown & J. A. Pechman (Eds.), ***Gender in the workplace:*** 59–92. Washington, DC: Brookings Institution.

Hoffman, E. P. 1976. Faculty salaries: Is there discrimination by sex, race, and discipline? Additional evidence. ***American Economic Review,*** 66: 196–198.

Iams, H. M., & Thornton, A. 1975. Decomposition of differences: A cautionary note. ***Sociological Methods and Research,*** 3: 341–352.

Izraeli, D. N., & Gaier, K. 1979. Sex and interoccupational wage differences in Israel. ***Industrial Relations,*** 18: 227–232.

Kanter, R. M. 1977. ***Men and women of the corporation.*** New York: Basic Books.

Kimberly, J. R. 1976. Organizational size and the structuralist perspective: A review, critique, and proposal. ***Administrative Science Quarterly,*** 21: 571–597.

Lewis, G. B. 1986. Gender and promotions. ***Journal of Human Resources,*** 21: 406–419.

Oaxaca, R. 1973. Male-female wage differential in urban labor markets. ***International Economic Review,*** 14: 693–709.

Olson, C. A., & Becker, B. E. 1983. Sex discrimination in the promotion process. ***Industrial and Labor Relations Review,*** 36: 624–641.

Roos, P. A. 1981. Sex stratification in the workplace: Male-female differences in economic returns to occupation. ***Social Science Research,*** 10: 195–224.

Rosenbaum, J. A. 1979. Organizational career mobility: Promotion chances in a corporation during periods of growth and contraction. ***American Journal of Sociology,*** 85: 21–48.

Scott, W. R. 1987. ***Organizational rational, natural and open systems.*** Englewood Cliffs, NJ: Prentice-Hall.

Semyonov, M., & Kraus, V. 1983. Gender, ethnicity and income inequality: The Israeli experience. ***International Journal of Comparative Sociology,*** 24: 258–272.

Shenhav, Y. 1991. Expected managerial careers within growing and declining R&D establishments. ***Work and Occupations,*** 18: 46–71.

Simon, H. A. 1957. ***Administrative behavior.*** New York: Macmillan.

Stewart, L. P., & Gudykunst, W. B. 1982. Differential factors influencing the hierarchical level and number of promotions of males and females within an organization. ***Academy of Management Journal,*** 25: 586–597.

Stolzenberg, R. M. 1978. Bringing the boss back in: Employer size, employee schooling, and socioeconomic achievement. ***American Sociological Review,*** 43: 813–828.

Treiman, D. J., & Hartmann, H. I. (Eds.). 1981. ***Women, work and wages: Equal pay for jobs of equal value.*** Washington, DC: National Academy Press.

Tsui, A. S., & Gutek, B. A. 1984. A role set analysis of gender differences in performance, affective relationships, and career success of industrial middle managers. ***Academy of Management Journal,*** 27: 619–635.

Villemez, W. J., & Bridges, W. P. 1988. When bigger is better: Differences in individual level effect of firm size and establishment size. ***American Sociological Review,*** 53: 237–255.

Wolf, W. C., & Fligstein, N. D. 1979a. Sexual stratification: Differences in power in the work setting. ***Social Forces,*** 58: 94–107.

Wolf, W. C., & Fligstein, N. D. 1979b. Sex and authority in the workplace: The causes of sexual inequality. ***American Sociological Review,*** 44: 235–252.

APPENDIX A

In wage discrimination studies, wage equations are estimated separately for men and for women as follows:

$$y_m = b_{Om} + B'_m X_m \text{ and } y_w = b_{Ow} + B'_w X_w,$$

where y denotes salary, b_O is an intercept, B is a coefficients vector, X is a vector of salary determinants, and "m" and "w" denote men and women. The observed salary differential ($\bar{y}_m - \bar{y}_w$) is decomposed (Iams and Thornton, 1975, and Oaxaca, 1973, explain this method) into (1) a legitimate portion attributable to differing levels of such salary determinants as different human capital levels or differing jobs: $B'_m (\bar{X}_m - \bar{X}_w)$, (2) a portion attributable to differing coefficients, or returns on the salary determinants: $\bar{X}'_w (B_m - B_w)$, and (3) a shift coefficient ($b_{Om} - b_{Ow}$), which is the difference between the constant terms of the two equations. Discrimination (D) is estimated by the sum of the shift coefficient and the differences between the coefficients:

$$D = (b_{Om} - b_{Ow}) + \bar{X}'_w (B_m - B_w).$$

APPENDIX B
Definitions of Variables

Wages: Total monthly salary in U.S. dollars.
Gender: 1 = man, 0 = woman.
Marital status: 1 = married, 0 = not married.
Children: Number of children.
Age: Age in years.
Age squared: Age in years squared.
Post–high school: 1 = post–high school, nonuniversity accreditation, 0 = otherwise.
B.A.: 1 = B.A. degree, 0 = otherwise.
M.A.: 1 = M.A. degree, 0 = otherwise.
Ph.D.: 1 = Ph.D. degree, 0 = otherwise.
Tenure: Length of employment in the organization in years.
Full-time: Hours worked as a percentage of full-time hours.
Level: 1 = a manager at [ ] level, 0 = otherwise.
Rank: 1 = nonmanager to 6 = highest-level manager.
Division: 1 = worker in division [ ], 0 = otherwise.
Job cluster: 1 = a job in cluster [ ], 0 = otherwise.

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