New Market Power Models and Sex Differences in Pay

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I. Introduction

One of the earliest explanations of the "gender gap" in wages was suggested by Joan Robinson (1969, pp. 224-27). Although Robinson's model appears in many economics textbooks, the discussion of it is usually skeptical, as it is based on the assumption of a pure monopsony--a single employer of labor in a market--and this seems at odds with the marketplace that we observe almost everywhere. Perhaps for this reason, models of monopsony have not been very influential in the economics literature on labor market discrimination in the past 40 years. That literature has focused primarily on explaining how disciminatory wage differences could occur in competitive markets, with much of this literature following Becker (1971).

However, some recent models of imperfectly competitive labor markets suggest that employers may have market power, even when there are numerous employers. For example, Bhaskar and To (1999) develop a model of monopsonistic competition. Burdett and Mortensen (1998) develop a general equilibrium search model, in which individual firms, although "small" with respect to the labor market, face labor supply curves that slope upward. The general implications of this model have been explored in a recent book by Manning (2003). An article by Black (1995) examines more specifically the discrimination aspects of the model. Boal and Ransom (1997) refer to these and related models as "dynamic monopsony," and discuss a number of them in their survey article on monopsony in the labor market.

In this paper, we attempt to estimate the labor supply curve to an individual firm, using some of the results of the Burdett-Mortensen model as a framework for our analysis. We find that the elasticity of labor supply to the firm does differ between men and women employees, and that this is consistent with profit-maximizing discrimination by the firm.

II. Models of Monopsony

Recent models of the labor market suggest that even in markets with many employers, it is possible that the individual firm will have some market power, in the sense that the labor supply curve to the firm is upward sloping. If the elasticity of labor supply varies across groups, such a firm can engage in third-degree wage discrimination, setting wages separately for each group. Even if workers are equally productive, groups of workers with higher elasticities of labor supply will receive higher wages. This is the basic model of wage discrimination proposed by Robinson (1969, pp. 224-27).

One type of model that suggest that firms have market power is the general equilibrium search model, e. g., Burdett and Mortensen (1998). The following description of that model borrows from the notation and presentation of Manning (2003, Section 2.2 and 4.4). The simplest version of this model has the following structure: Firms have identical production, with constant returns to scale, with average and marginal product of workers equal to p. Workers are also identical, and each has the same value of leisure, b. Some workers are employed and others are unemployed. Workers and potential workers receive job offers from a distribution F(w) at rate λ. An employed worker accepts the offer if it is greater than his or her current wage. Unemployed accepts any offer greater than b. (In equilibrium, no firm will offer a wage less than b, so this means that an unemployed worker will accept any job offer.) Jobs are also exogenously randomly destroyed (or workers quite) at rate δ.

In equilibrium, all firms earn the same profit,

$$\pi = (p-w)N(w;F),$$

but there is wage dispersion, described by the distribution F(w). Firms that offer higher wages

employ more workers, so the labor supply function to the firm, N(w) is positively sloped. The distribution of wages across employees is G(w). G(w) differs from F(w) because workers are more likely to work for high wage firms. The relationship between F(w) and G(w) is described by the following equation:

(1) $G(w; F) = \delta F(w)/\{\delta + \lambda[1-F(w)]\}$.

This model yields the standard "monopsony" results–that the labor supply curve to the firm is upward sloping (because in order to have a larger workforce, a firm must offer a higher wage), and that all workers, (even those at the highest wage firms), are paid less than the marginal product of labor.

In this paper we exploit the dynamic nature of this model. In equilibrium, the flow of recruits to the firm just balances those who leave the firm:

(2) $s(w; F)N(w; F) = R(w; F)$ or, $N(w; F) = R(w; F)/s(w; F)$

where s(w) is the separation rate, and R(w) is the number of recruits. In terms of the parameters of the model, the separation rate is

(3) $s(w; F) = \delta + \lambda[1 - F(w)]$:

employees leave the firm either because they quit (the first term), or get a better job offer (the second term). The recruitment function can be written as:

(4) $R(w; F) = (\lambda/M)[u + (1-u)G(w; F)]$,

where $u = \delta/ (\delta + \lambda)$ is the unemployment rate, and M is the ratio of firms to workers in the market.

Since the flow of recruits must equal the flow of separations in steady state, we must have

(5) $\epsilon_R = - \epsilon_s$,

written in terms of elasticities. But from (2), above, we also have

(6) $\epsilon_N = \epsilon_R - \epsilon_s$.

So the elasticity of labor supply to the firm is just twice (the negative of) the separation elasticity. We exploit this because it is much easier to estimate the elasticity of separation than it is to estimate the elasticity of recruitment. (See Manning, pp. 96-100, for a more detailed derivation and explanation.)

III. The Firm

The data we analyze here comes from a regional grocery retailer in the western United States. We have year-end employment and wage data for the retail employees of the firm between 1976 and 1986. (By retail employees, we mean those who worked in the retail operations of the grocery stores themselves. Janitors, accountants, truck drivers, and the like, are not included in our analysis.) Table 1 summarizes some of the characteristics of the firm during the time period that we analyze. The firm operated between 55 and 60 stores, and had between 2200 and 2500 employees. The number of stores dropped slightly over the time period, and the number of employees increased. During this period the firm opened several new stores and closed several old ones. Many of the firms employees worked part tiime.

Figure 1 presents a simple organizational chart for the company's retail operations. Each store had three "management" positions, the store manager, the assistant manager, and the relief manager. Most of the workers held the title of "food clerk," and food clerk assignments included stocking shelves and operating cash registers. Produce clerks had the same pay scale as "Food Clerks," but worked in the produce department. Variety clerks stocked shelves in the non-foods

department. Some stores had other departments, such as delis or bakeries--workers from those departments are included in the "Other" category. Variety clerks and "other" employees were paid a substantially lower wage than food clerks. Courtesy clerks bagged and carried groceries. The produce and meat departments had "managers" who received a pay premium. The night crew chief supervised stocking operations during the hours the stores were closed, and also received a premium.

Figure 1 roughly shows the relative pay of these positions by the vertical position of the square. The jobs on the bottoms of the ladders were entry level positions. Courtesy clerks could be promoted into one of the other clerk positions, but mostly they were short term employees. There was some mobility between the different departments of the store, but meat department employees almost never changed departments. Most of the management positions were filled from within the store ranks by promotion, and this was true, to some extent, even of the store manager job. In another paper, we examine mobility within the store and its implications for pay differentials between men and women (Ransom and Oaxaca, forthcoming). It is clear that the meat department employees had particular skills. However, the other employees were, apparently, mostly trained on the job. According to a small supplementary survey of the employees, most were high school graduates but had little or no college training. This suggests that educational differences were unimportant in determining job placement and promotion.

Table 2 summarizes the characteristics of individuals in each job as of the end of 1982. (The earnings are only for those who held the same job title during the entire year, but the other statistics are for all those who held the job title as of December 31, 1982.)

All non-management retail employees (including the department "managers") were

covered by collective bargaining agreements. One contract covered the meat department employees, and another covered the other employees. We have examined the contract of one of the locals, which was affiliated with the United Food & Commercial Workers Union. This was a multi-employer agreement that covered several other employers in the city. Basically, the contract dictated pay, hours scheduling, benefits and working conditions. However, it did not restrict the employer in terms of whom it could hire, nor did it place restrictions on whom the employer could place in a particular job. For example, if the employer chose to promote a courtesy clerk to the food clerk position, the contract required only that the most senior courtesy clerk be considered for the job. Movements between departments were quite rare, but were at the discretion of the employer.

In the early 1980s, several women initiated a class-action lawsuit, alleging that the employer had discriminated against women in job assignment (particularly in promotion to management), and in part-time/full-time work assignments. The court found the defendant guilty of discrimination in 1984, and the two parties reach a negotiated settlement in mid-1986 on terms of backpay and affirmative relief. However, the affirmative relief outlined in the settlement did not take place during the period of our analysis here. Nevertheless, we might expect that the lawsuit itself may have had some impact on employment practices at the firm.

IV. Wage Differentials

Table 3 reports several regressions that summarizes the differences in wages of men and women for non-management employees. Column I shows that the wage of the average woman was about 8.5 percent more than of the average man. However, because women at this firm were

older and had more seniority than men, this is not a fair comparison. Column II shows that when men and women of the same age and seniority are compared, the wage of women is about 8.3 percent less. Column III shows that when job title is included in the analysis, the wage gap falls to only about 1.5 percent, although the difference is still statistically significant. (Column IV shows that job title alone explains about 95 percent of the variation in wages.) However, the preceding analysis understates the size of the wage gap because Table 3 analyzes only hourly workers. The high-pay management jobs were held almost exclusively by men in 1982. Table 4 shows the distribution of men and women across the various job titles in the company for year-end 1982.

The regression results of Table 3 are not the least bit surprising–we know that wages are set by job title according to the collective bargaining agreement. However, the analysis does make clear that the wage differential in the workplace is basically an issue of which job assignment an employee receives. Thus, the question we have to answer is this: "Why do women get the lousy jobs?" We believe that monopsonistic wage discrimination provides an answer.

V. Data

Our strategy here is to estimate the elasticity of labor supply to the firm by estimating the elasticity of separations, as explained in equations (5) and (6). The data we use come from year-end payroll files of the firm. These data include the pay rate and job title of the employee's current job, earnings for the past year, date of hire and date of birth. Each year-end file contains a record of all employees who worked for the firm during the year, even though they may have terminated before the end of the year. By matching consecutive years, we can identify those who

stopped working for the firm during a given year. We have pooled workers for all years between 1977 and 1985. (We lose the first and last year because we can't identify separation dates from the year-end files directly.) According to our definition, a separation occurs when someone was employed at the end of year t-1, and was no longer employed at the end of year t. We do not know the reason for the separation. We assume that virtually all of these are quits, but at least a few would have been dismissals.

Table 5 presents summary statistics for our data. The turnover rate over this period was fairly high–about 16 percent of the workforce left the employer each year, on average. Our total sample includes 14, 570 person-years, of which about 44 percent are from female employees.

VI. Estimation and Results

We estimate a model of the following form:

$$(7) \qquad T_i = \alpha_0 + \alpha_1 w_i + \alpha_2 \text{Female}_i * w_i + \beta' X_i + u_i,$$

where T is an indicator equal to 1 if an individual separated during the year, w_i is the logarithm of the real wage at the start of the year (or rather the end of the previous year), FEMALE is an indicator equal to 1 if the worker is female, and X represents a vector of other explanatory variables.

Table 6 reports the regression results from estimating various versions of (7) using a linear probability model. We have estimated three versions of the model. Model I includes only powers of age as explanatory variables. Age is included to capture differences in labor market experience, which might reflect differences in the skills of the workers. Model II additionally includes tenure with the firm and its square. It is not clear that tenure ought to be included in a

model of separations, but since some promotion and job assignment decisions may be based on seniority, we include these here.[1] The results in which we are most interested, the separation elasticities, are not sensitive to inclusion of tenure.

We have also included dummy variables for each of the years. We include these because the if the firm opens new stores, or closes stores in a given year, this may have an impact on separations, independent of the wage structure. Also, business cycle may influence the other opportunities of workers within the firm. We do find that separations varied quite a bit from year to year, and that the rate was especially high during the last year of our analysis. However, the elasticity estimates are insensitive to inclusion of the year dummies.

The coefficients on the log wage can be interpreted as the wage elasticity of separations. Using the arguments from Section II, these results suggest an elasticity of labor supply to firm of about .7 or .75 for men, and about .65 for women (twice the negative of the separation elasticity). In addition to having a slightly lower elasticity of separation, women also have a lower probability of separation, holding the wage constant. The coefficient of most interest for this analysis is the interaction between the log wage and the female dummy. A statistical test of the hypothesis that the elasticity is the same for men and women would not be rejected at the 5-percent significance level.

A more appropriate regression model for data of this type is the probit model We have also estimated a probit model, and the results are reported in Table 7. While the results are more

[1]One alternative model of separations is a matching model in which those who find a good match at the firm stay with the firm, while those who do not match well leave the firm quickly. If there is a seniority component to the wage, then this would appear to make separations sensitive to the wage, when in fact they are not. However, our estimates of the separation elasticities are not very sensitive to whether tenure is included in the model.

difficult to interpret in this case (since the probit model is nonlinear), the main question is still whether the interaction term between log wage and the female dummy is significantly different from zero. In this case, we do reject the hypothesis that men and women have the same elasticity of labor supply for Model III. For Model I and Model II, the test has a slightly larger p-value of about 6 percent.

Because it appears that the separation rate was quite a bit higher in 1985, and because we are concerned about the effect that the lawsuit may have had on the firm's personnel practices, se have also estimated the same model for the early years of our sample–restricting the analysis to 1977 through 1982. The probit regression results for this analysis are presented in Table 8. Generally, the results are similar to those reported for the entire sample. However, the male/female difference in separation elasticities appears to be quite a bit larger in this case. In most versions of the model, the difference is statistically significant at the 1 percent significance level.

VII. Summary and Conclusions

In this paper we have estimated the sensitivity of separations to the wage rates offered to different employees within a regional grocery chain. Within the context of an equilibrium search model, these results inform us about the elasticity of labor supply that the firm faces. Our results for this firm suggest an elasticity of about 2/3 to 3/4, which is indication of significant monopsony power. We find that women are less likely than men to separate from the firm conditional on the wage, and that women are also less sensitive to wage differences. We interpret this to mean that the labor supply elasticity of women is less than that of men, and this

difference provides an opportunity for the firm to discriminate.

Of course, since the employees that we examine in this paper are all part of a union, we must interpret these results with some caution, as the firm is not free to set wages without bargaining. We may think of the firm's wage policy as the following: When bargaining with the union, the firm does its best to create lower paying jobs. Thus, although the type of work is very similar between some who have the "variety clerk" title and others who have the "food clerk" title, the variety clerk is paid much less. Once the wage structure of jobs is set, the firm chooses a level of quality for employees, and then fills the jobs. Our answer to the question of "Why do women have the bad jobs?" is that women are less sensitive to the pay of the jobs, so it makes sens for the company to fill those jobs with women. In the context of the model we have developed here, that means the firm takes advantage of its market power to discriminate against women employees.

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Table 1

Company Characteristics--Retail Operations

Selected Years (As of 31 December)

	1976	1982	1986
Number of Stores	60	58	55
Number of Stores in Largest Metropolitan Area	35	36	32
Number of Retail Employees	2,182	2,480	2,489
Percent of Employees who are Female	36.20%	38.80%	41.20%
Percent of Employees who work Part Time	50.80%	65.40%	75.60%
Average Age	29.6	31	31.7
Average Seniority	4.5	5.9	6.3

Table 2

Characteristics of Job Holders

Year End, 1982

Job Title	Variable	Mean	Standard Deviation	Minimum	Maximum
	Weekly Salary	609.00	0	609.00	609.00
	Annual Earnings	34,099.05	3,859.89	31,543.00	44,204.10
Store Manager	Seniority	15.61	8.23	0.38	34.12
(N=58)	Age	39.44	9.92	25.19	63.14
	Female	0.00	0.00	0.00	0.00
	Weekly Salary	541.00	0.00	541.00	541.00
	Annual Earnings	28,308.88	386.64	27,536.00	29,199.00
Assistant Manager	Seniority	10.85	6.42	0.41	34.21
(N=58)	Age	33.34	8.68	21.97	54.97
	Female	0.05	0.22	0.00	1.00
	Weekly Salary	513.00	0.00	513.00	513.00
	Annual Earnings	26,561.52	146.16	26,147.00	27,047.00
Relief Manager	Seniority	7.04	5.06	0.55	31.13
(N=57)	Age	30.16	9.44	20.30	58.44
	Female	0.05	0.23	0.00	1.00
	Hourly Wage	9.06	0.99	5.58	9.55
	Annual Earnings	17,222.82	3199,21	3,283.58	23,297.20
Food Clerk	Seniority	6.39	5.08	0.03	32.83
(N=1,114)	Age	33.36	11.76	17.72	65.02
	Female	0.54	0.50	0.00	1.00
	Hourly Wage	9.65	0.12	9.50	9.75
	Annual Earnings	20,984.38	1,391.08	17,841.61	24,153.07
Night Crew Chief	Seniority	6.32	3.98	0.50	22.34
(N=56)	Age	29.68	8.97	20.54	56.83
	Female	0.05	0.23	0.00	1.00
	Hourly Wage	3.19	0.29	2.85	3.60
	Annual Earnings	4,859.61	1,408.86	1,760.35	9,761.70
Courtesy Clerk	Seniority	0.90	0.83	0.02	4.40
(N=568)	Age	19.16	4.62	16.09	72.63
	Female	0.29	0.46	0.00	1.00
	Hourly Wage	9.85	0.10	9.65	10.01
	Annual Earnings	23,454.38	1,108.86	18,900.44	25,165.37
Produce Manager	Seniority	14.64	8.61	2.17	31.90
(N=58)	Age	36.29	9.86	20.04	56.61
	Female	0.00	0.00	0.00	0.00

Table 2 (con't)

Job Title	Variable	Mean	Standard Deviation	Minimum	Maximum
	Hourly Wage	8.95	1.13	5.58	9.55
	Annual Earnings	17,899.87	3,478.52	7,811.48	22,281.83
Produce Clerk	Seniority	6.61	6.62	0.22	32.78
(N=109)	Age	30.21	10.39	16.73	61.89
	Female	0.12	0.33	0.00	0.00
	Hourly Wage	11.64	0.09	11.29	11.67
	Annual Earnings	29,147.17	1,572.17	25,116.82	32,309.71
Meat Manager	Seniority	11.43	7.43	1.42	29.08
(N=57)	Age	40.65	9.05	27.21	64.48
	Female	0.00	0.00	0.00	0.00
	Hourly Wage	11.28	0.33	7.20	11.33
	Annual Earnings	24,523.44	2,652.64	3,212.41	28,909.21
Meat Cutter	Seniority	7.19	5.87	0.41	28.64
(N=168)	Age	41.36	11.01	23.11	65.98
	Female	0.01	0.08	0.00	1.00
	Hourly Wage	10.28	0.27	9.07	10.40
	Annual Earnings	18,758.66	4,164.13	2,156.20	24,197.57
Meat Wrapper	Seniority	8.33	6.88	0.23	26.00
(N=89)	Age	41.90	11.42	20.47	64.84
	Female	0.97	0.18	0.00	1.00
	Hourly Wage	7.26	0.96	5.39	8.64
	Annual Earnings	13,132.72	2,410.48	7,736.17	17,021.99
Variety Clerk	Seniority	6.42	4.67	0.16	16.31
(N=78)	Age	32.69	12.63	16.71	63.34
	Female	0.95	0.22	0.00	1.00
	Hourly Wage	6.55	0.95	5.58	8.47
	Annual Earnings	11,659.68	3,074.14	7,674.86	18,272.61
Other	Seniority	5.86	5.59	0.24	18.96
(N=13)	Age	36.28	15.57	18.05	62.08
	Female	0.77	0.44	0.00	1.00

Table 3

Regression Results for Hourly Workers, 1982

Dependent Variable is Logarithm of Hourly Wage

(Standard Errors are in Parentheses)

	I	II	III	IV
Intercept	1.926	-0.221	0.870	1.152
	(0.013)	(0.047)	(0.018)	(0.005)
Female	0.084	-0.078	-0.013	0.011
	(0.020)	(0.012)	(0.005)	(0.005)
Seniority	-	0.065	0.019	-
		(0.003)	(0.001)	
$(\text{Seniority})^2$	-	-2.25e-03	-6.23e-04	-
		(1.26e-04)	(4.60e-05)	
Age	-	0.111	0.019	-
		(0.003)	(0.001)	
$(\text{Age})^2$	-	-1.30e-03	-2.19e-04	-
		(3.04e-05)	(1.61e-05)	
Food Clerk	-	-	0.903	1.039
			(0.007)	(0.006)
Night Crew Chief	-	-	0.966	1.115
			(0.015)	(0.015)
Produce	-	-	0.946	1.135
			(0.015)	(0.015)
Produce Clerk	-	-	0.900	1.029
			(0.011)	(0.011)
Meat Manager	-	-	1.100	1.303
			(0.015)	(0.015)
Meat Cutter	-	-	1.100	1.303
			(0.015)	(0.015)
Meat Wrapper	-	-	1.014	1.167
			(0.013)	(0.013)
Variety Clerk	-	-	0.689	0.811
			(0.013)	(0.014)
Other	-	-	0.596	0.710
			(0.027)	(0.031)
Courtesy Clerk	-	-	-	-
R^2	0.007	0.676	0.961	0.949

Table 4

Distribution of Men and Women Across Jobs

Year-end 1982

	Women Holding Title	Fraction of All Women	Men Holding Title	Fraction of All Men
Store Manager	0	0.000	58	0.038
Assistant Manager	3	0.003	55	0.036
Relief Manager	3	0.003	55	0.036
Food Clerk	599	0.623	507	0.334
Night Crew Chief	3	0.003	53	0.035
Courtesy Clerk	170	0.177	403	0.265
Produce Manager	0	0.000	58	0.038
Produce Clerk	13	0.014	96	0.063
Meat Manager	0	0.000	57	0.038
Meat Cutter	1	0.001	167	0.110
Meat Wrapper	86	0.089	3	0.002
Variety Clerk	74	0.077	4	0.003
Other	10	0.010	3	0.002
Total	962	1.000	1518	1.000

Table 5

Summary Statistics for Grocery Store Data

Sample size = 14,570

Variable	Mean	Standard Deviation	Minimum	Maximum
Separated	0.16	0.37	0.00	1.00
Age	33.74	12.64	16.25	75.63
Tenure	6.99	5.86	0.03	37.22
Wage (nominal)	8.12	2.42	1.96	13.28
Wage (1977 Dollars)	5.63	1.29	1.60	7.48
Female	0.44	0.50	0.00	1.00

Fraction of sample from each year

Year 1977	0.098
Year 1978	0.098
Year 1979	0.106
Year 1980	0.118
Year 1981	0.125
Year 1982	0.125
Year 1983	0.113
Year 1984	0.110
Year 1985	0.108

Figure 1
Store Level Organization

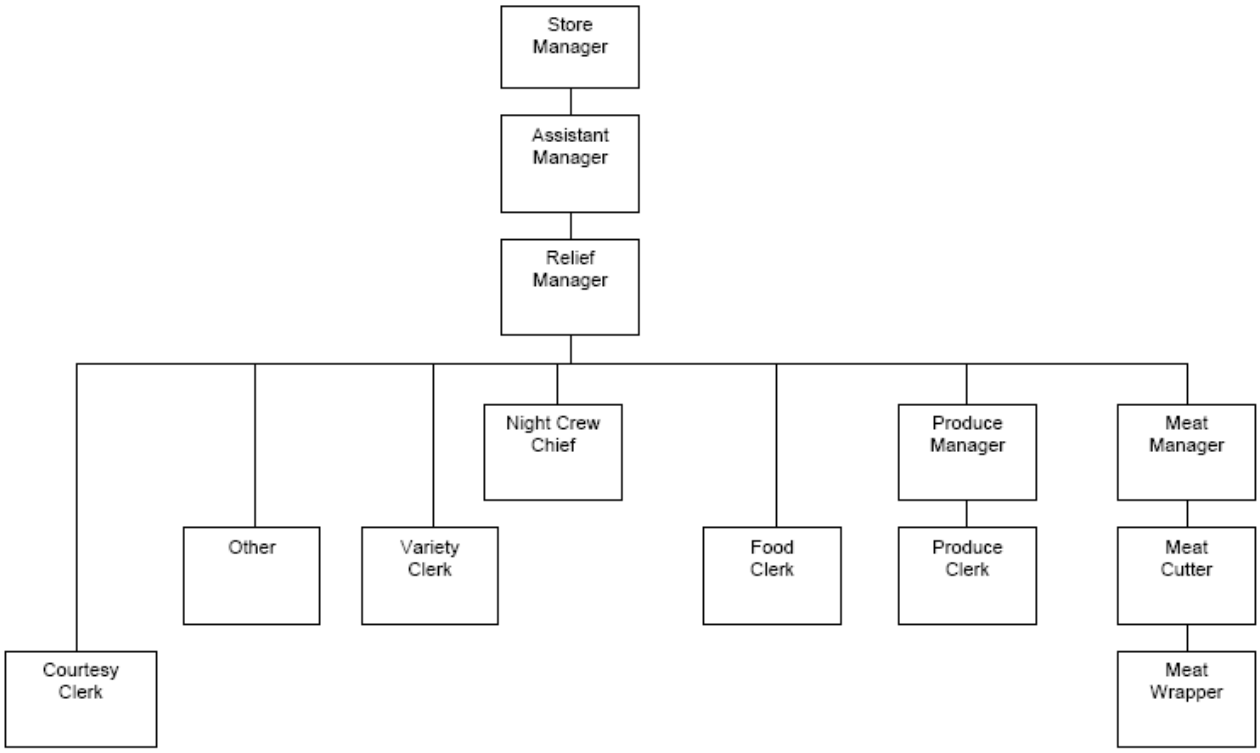

Table 6
Linear Probability Regression Models
Dependent Variable is Separation
Sample size = 14,570

(Heteroskedasticity Robust Standard Errors in Parentheses)

Variable	Model I	Model II	Model III
Intercept	0.50157	0.42679	0.49103
	(0.1114)	(0.1140)	(0.1155)
Female	-0.07871	-0.08812	-0.08699
	(0.0490)	(0.0491)	(0.0489)
logW (1977 $)	-0.37706	-0.35716	-0.35161
	(0.0193)	(0.0195)	(0.0196)
logW *Female	0.04275	0.04564	0.04507
	(0.0278)	(0.0279)	(0.0278)
Age	0.03518	0.04103	0.03893
	(0.0108)	(0.0110)	(0.0111)
Age^2	-0.00119	-0.0013	-0.00125
	(0.000285)	(0.00029)	(0.00029)
Age^3	0.00001169	0.0000124	0.00001204
	(2.396E-06)	(2.441E-06)	(2.464E-06)
Tenure		-0.01181	-0.01292
		(0.0016)	(0.0016)
$Tenure^2$		0.00036584	0.00039337
		(5.832E-05)	(5.895E-05)
Year 1977			-0.04434
			(0.0133)
Year 1978			-0.02474
			(0.0133)
Year 1979			-0.06604
			(0.0125)
Year 1980			-0.05051
			(0.0128)
Year 1981			-0.07057
			(0.0124)
Year 1982			-0.03138
			(0.0124)
Year 1983			-0.04465
			(0.0121)
Year 1984			-0.04125
			(0.0123)
R^2	0.1229	0.1263	0.1292

Table 7
Probit Regression Results
Dependent Variable is Separation
Sample Size = 14,570
(Asymptotic Standard Errors in Parentheses)

	Model I	Model II	Model III
Intercept	-0.2887 (0.3466)	-0.5695 0.3500	-0.2643 (0.3597)
Female	-0.2044 (0.1337)	-0.2404 0.1336	-0.2436 (0.1340)
logW (1977 $)	-1.1273 (0.0576)	-1.0165 0.0590	-0.9909 0.0601
logW *Female	0.1507 (0.0808)	0.1561 0.0808	0.159 0.0810
Age	0.1472 (0.0327)	0.1675 0.0330	0.1566 0.0335
Age^2	-0.0052 (0.0008)	-0.0056 (0.0009)	-0.0053 0.0009
Age^3	0.0001 (0.0000)	0.0001 (0.0000)	0.0001 (0.000)
Tenure		-0.062 (0.0078)	-0.0669 0.008
$Tenure^2$		0.0018 (0.0003)	0.0019 0.0003
Year 1977			-0.1931 0.0580
Year 1978			-0.1200 0.0580
Year 1979			-0.3041 0.0584
Year 1980			-0.2103 (0.550)
Year 1981			-0.3046 (0.0551)
Year 1982			-0.1458 (0.0539)
Year 1983			-0.2319 (0.0570)
Year 1984			-0.1886 (0.0569)
Log Likelihood	-5677.1866	-5642.33	-5620.12

Table 8
Probit Regression Results for
Early Years of Sample Only (1977-82)
Dependent Variable is Separation
Sample Size = 9,751
(Asymptotic Standard Errors in Parentheses)

Variable	Model I	Model II	Model III
Intercept	-0.8614 (0.4360)	-1.0904 (0.4389)	-1.0808 (0.4472)
Female	-0.4085 (0.1735)	-0.4377 (0.1735)	-0.4191 (0.1739)
logW (1977 $)	-1.2217 (0.0729)	-1.1107 (0.0749)	-1.115 (0.0761)
logW *Female	0.2777 (0.1055)	0.2801 (0.1055)	0.2702 (0.1058)
Age	0.2055 (0.0420)	0.2221 (0.0422)	0.2271 (0.0427)
Age^2	-0.0067 (0.0011)	-0.007 (0.0011)	-0.0071 (0.0011)
Age^3	0.0001 (0.0000)	0.0001 (0.0000)	0.0001 (0.0000)
Tenure		-0.0645 (0.0098)	-0.0661 (0.0098)
$Tenure^2$		0.0022 (0.0004)	0.0022 (0.0004)
Year 1977			-0.0332 (0.0561)
Year 1978			0.0407 (0.0562)
Year 1979			-0.1449 (0.0565)
Year 1980			-0.0575 (0.0529)
Year 1981			-0.154 (0.0531)
Log Likelihood	-3852.97	-3831.15	-3821.61