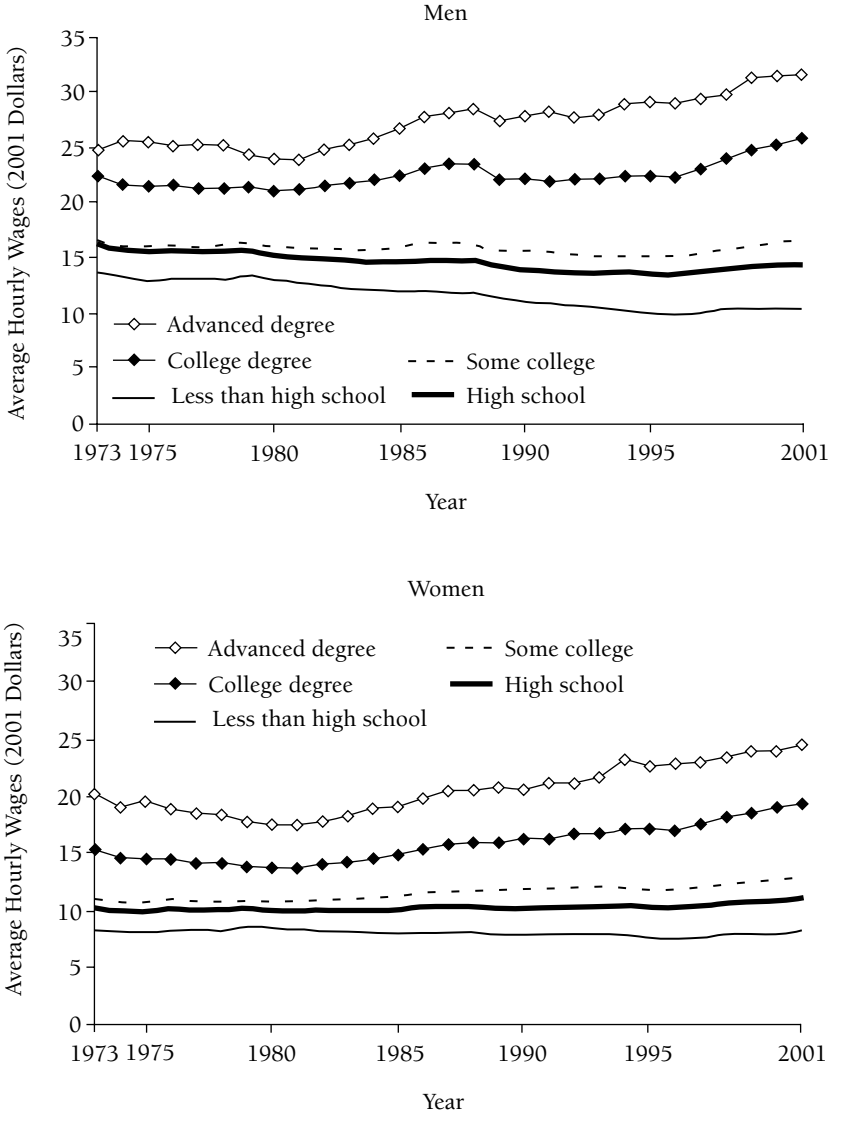
Figure 1.1 Average Hourly Wages by Education, 1973 to 2001



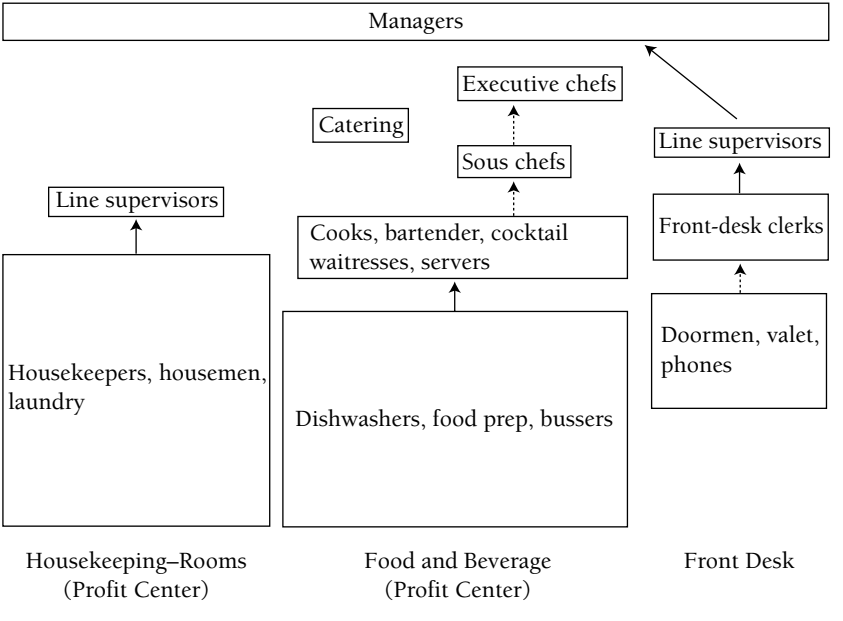
Source: Based on data from Mishel, Bernstein, and Boushey (2003, 159, table 2.18).

Table 1.1 Employer Responses to Increased Competition and the Impact on Frontline Workers

	Dominant Strategies (Effects on Frontline Workers Largely Negative)	Variations (Effects on Frontline Workers Both Negative and Positive)	Sources of Variation
Firms that focus on compensation and the organization of work	Freeze wages and increase workloads Use contingent workers to cut labor costs Subcontract and outsource to cut costs and wages Relocate and consolidate functions	Use work reorganization to increase productivity and reduce turnover Innovate with respect to products Outsource to capture economies of scale; outsource only partially to gain better management Use temps to screen risky workers for permanent jobs	Unions Regional labor market institutions Quality of information available to managers about high-productivity strategies Regulation (minimum wage, industry regulation) Tight labor markets
Firms that focus on new technology	Introduce new technology to automate routine tasks and reduce reliance on low-skilled workers Technology deskills entry-level jobs	Train entry-level workers without college degrees for new technology Link entry-level jobs to career ladders	

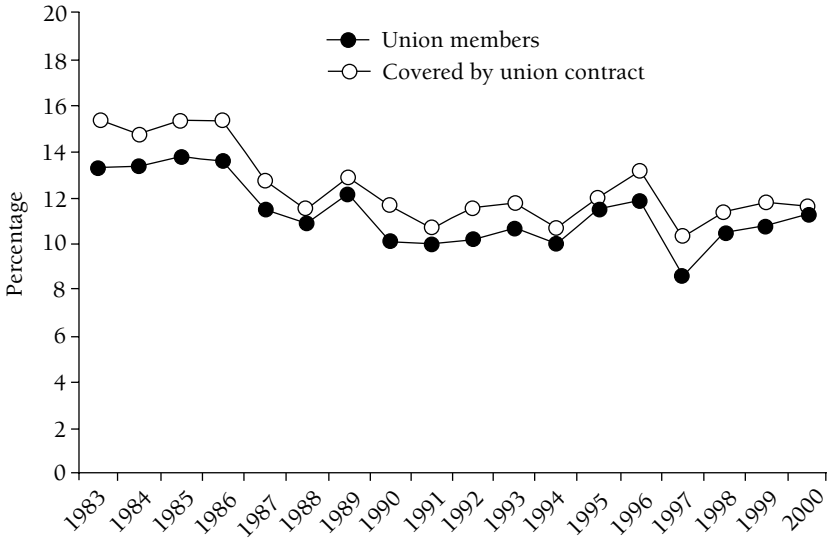
Source: Authors' compilation.

Figure 2.1 Typical Mobility Paths in Eight Case-Study Hotels



Source: Authors' configuration.

Figure 2.2 Unionization Rates in the Hospitality Industry, 1983 to 2000



Source: Based on data from Hirsch and Macpherson (2001).

Table 2.1 Distribution and Location of Eight Union and Non-Union Case-Study Hotels, by Union Density

	Union Density	
Unionized	Low	High
No	City A, Hotel 1 City B, Hotel 2	City C, Hotel 3 City D, Hotel 4
Yes	City A, Hotel 5 City B, Hotel 6	City C, Hotel 7 City D, Hotel 8

Source: Authors' compilation.

Table 2.2 The Changing Wage Structure of the Hotel Industry in U.S. Metropolitan Areas, 1979 to 2000

	1979	1983	1989	1995	2000
Median hotel hourly wage	$8.56	$7.79	$8.34	$7.91	$9.20
90/10 ratio	2.37	2.61	3.06	3.45	3.29
College/high school ratio	1.39	1.24	1.35	1.56	1.88
Private-sector median wage	$13.04	$12.11	$12.41	$11.58	$12.50

Source: Authors' analysis of CPS-ORG files.
Note: All hourly wages in 2000 dollars.

Table 2.3 Typical Hotel Job Hierarchy, 2000

	Housekeeping-Rooms	Food and Beverage	Front Desk
Entry-level I	• Housekeepers • Housemen $6 to $9 per hr. 93 to 96% of rooms division	• Dishwashers and bussers • Cook's helpers $6 to $10 per hr. 40 to 50% of food division	• Phones • Valet and bell desk $7 to $10 per hr. 30 to 50% of front desk
Entry-level II		• Cooks • Servers, bartenders, hosts $9 to $13 per hr. 30 to 40% of food division	• Front-desk clerks • Accounting clerks $9 to $15 per hr. 30 to 50% of front desk
Frontline supervisors and mid-level managers	• Inspectresses • Trainer • Assistant managers $25 to $35k a year 1 to 5% of rooms division	• Sous chefs, lead cooks • Room service manager • Assistant executive chef $35 to $45k 1 to 5% of food division	• Line managers • Assistant director of hotel operations $25 to $45k a year 1 to 5% of front desk
"Craft" occupations		• Banquet catering servers • High-end restaurant servers and bartenders • Cocktail waitresses $25k to $70k 20% of food division	

Table 2.3 *Continued*

	Housekeeping-Rooms	Food and Beverage	Front Desk
Senior managers	• Director of housekeeping	• Director of food and beverage • Executive chef • Restaurant managers	• Director of hotel operations
	$$$	$$$	$$$
	1 to 3% of rooms division	1 to 3% of food division	1 to 3% of front desk

Source: Authors' analysis of eight case-study hotels.
Note: Dollar amounts are entry-level wages or salaries, and vary depending on the local cost of living and whether they are negotiated by a union contract. $$$: Precise figures for senior managers are unavailable, but salaries are generally high.

Table 2.4 Racial and Ethnic Composition of the Hotel Industry in U.S. Metropolitan Areas, 1979 to 2000

	1979	1983	1989	1995	2000
Non-Hispanic white	70.0%	61.1%	56.1%	51.9%	47.5%
Non-Hispanic black	20.0	18.5	17.2	17.9	16.8
Hispanic	12.1	13.7	20.4	23.1	25.2
Other	5.9	6.7	6.2	7.1	10.4

Source: Authors' analysis of CPS-ORG files.

Table 2.5 Unions and Wages in the Hotel Industry in U.S. Metropolitan Areas, 1983 to 2000

	1983	1989	1995	2000
Union members	14.5%	15.0%	14.8%	13.8%
All workers				
Union median hourly wage	$8.87	$9.73	$9.04	$10.50
Non-union median hourly wage	$7.79	$7.65	$7.91	$9.00
Union/non-union wage ratio	1.14	1.27	1.14	1.17
Nonmanagerial workers only				
Union median hourly wage	$8.82	$9.73	$9.04	$10.37
Non-union median hourly wage	$7.09	$7.30	$7.35	$8.00
Union/non-union wage ratio	1.24	1.33	1.23	1.30

Source: Authors' analysis of CPS-ORG files.
Note: All wages in 2000 dollars.

Table 2.6 The Effect of Unions on Firm Restructuring in Eight Case-Study Hotels

Dimension of Restructuring	Union Effect?	Degree of Effect	Relevant Conditions
Wages	Yes	Within markets, union wages are higher by $0.25 to $1.70 per hour.	Union density matters more than union presence—high-density wages are $3 higher than low-density wages.
Work intensity	Some	Work intensity is at the forefront of labor-management relations. Some union hotels have lower workloads (as measured by room quotas). Some hotels make sure that workers get paid for the added work (in the case of cross-training).	Strongest effects are seen in high-density cities, but they are not always apparent even there.
Hours and scheduling	Some	Hours and scheduling are at the forefront of labor-management relations. Successful protection of full-time jobs is seen in some cities.	Strongest effects are seen in high-density cities. Union attention to and prioritization of this area is critical.
Subcontracting	Some, but weak	In some cities subcontracting of restaurants has been resisted and/or effects on workers have been mitigated through negotiations. Most other forms of outsourcing are unchallenged.	Strongest effects are seen in high-density cities, especially where unions are making this a priority.
Career ladders	Little	Not relevant.	Only in germination stage where density is high.

Source: Authors' compilation.

Table 3.1 The Effect of Enhanced Jobs on Turnover

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Nursing assistant	−0.427** (.209)	−1.407 (1.22)	−0.262 (0.218)	−0.209 (−0.413)	−0.505 (0.653)	−0.188 (0.211)	−0.172 (0.221)
Enhanced	−0.277 (0.180)	−0.314** (0.158)	−0.366** (0.177)	−0.350* (0.188)	−0.572*** (−0.207)	−0.320* (0.173)	−0.298* (0.175)
Wage	—	−0.245** (0.112)	−0.170** (0.067)	—* (0.067)	−0.165** (−0.077)	−0.172** (0.069)	−0.185** (0.077)
Nursing assistant × wage	—	0.120 (0.127)	—	—	—	—	—
Union member	—	—	−0.086 (0.276)	−0.225 (0.278)	0.005 (0.307)	—	—
Staff adequacy	—	—	—	−0.350*** (0.130)	—	—	—
Nursing assistant × staff adequacy	—	—	—	−0.003 (0.156)	—	—	—

Employment security	—	—	—	—	−0.492*** (0.162)	—	—
Nursing assistant × employment security	—	—	—	—	0.102 (0.208)	—	—
Formal training	—	—	—	—	—	−0.089 (0.277)	—
Informal training	—	—	—	—	—	—	−0.441 (0.283)
N	447	401	397	394	372	400	400
Prob > Chi 2	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Pseudo R-squared	.0419	.0538	.0540	.0712	.0811	0.053	0.058

Source: Authors' compilation.
Note: Control variables include gender, race-ethnicity, education, and age. Robust standard errors are in parentheses. Intention to quit job uses an ordered logit regression.
* $.05 < p < .10$.
** $.01 < p < .05$.
*** $p < .01$.

Table 3.2 The Effect of Enhanced Jobs on Job Satisfaction

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Nursing assistant	0.563**	1.883**	0.559**	0.850*	1.263**	0.378*	0.490**
	(0.238)	(0.817)	(0.228)	(0.466)	(0.581)	(0.212)	(0.199)
Enhanced	0.124	0.075	0.076	0.076	0.231	0.069	0.056
	(0.187)	(0.196)	(0.185)	(0.170)	(0.175)	(0.200)	(0.181)
Wage	—	0.249***	0.173***	0.121**	0.127**	0.158**	0.178***
		(0.058)	(0.060)	(0.057)	(0.055)	(0.061)	(0.058)
Nursing assistant × wage	—	−0.132	—	—	—	—	—
		(0.082)					
Union member	—	—	−0.413	−0.227	−0.540*	—	—
			(0.338)	(0.324)	(0.285)		
Staff adequacy	—	—	—	0.885***	—	—	—
				(0.098)			
Nursing assistant × staff adequacy	—	—	—	−0.184	—	—	—
				(0.129)			

Employment security	—	—	—	—	0.745*** (0.140)	—	—
Nursing assistant × employment security	—	—	—	—	−0.289 (0.180)	—	—
Formal training	—	—	—	—	—	0.546** (0.240)	—
Informal training	—	—	—	—	—	—	0.861*** (0.159)
N	446	400	396	393	371	399	399
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R-squared	0.050	0.071	0.074	0.259	0.168	0.082	0.114

Source: Authors' compilation.
Note: Control variables include gender, race-ethnicity, education, and age. Robust standard errors are in parentheses. Job satisfaction uses an OLS regression.
* $.05 < p < .10$.
** $.01 < p < .05$.
*** $p < .01$.

Table 3.3 The Effect of Enhanced Jobs and Other Human Resource Variables on Turnover and Job Satisfaction

	Model 1: Turnover	Model 2: Job Satisfaction	Model 3: Turnover
Nursing assistant	−2.05	2.73**	−0.301
	(1.475)	(1.04)	(1.70)
Enhanced	−0.511**	0.166	−0.483**
	(0.214)	(0.159)	(0.226)
Wage	−0.282**	0.250***	−0.121
	(0.131)	(0.071)	(0.150)
Nursing assistant × wage	0.181	−0.246**	0.022
	(0.149)	(0.091)	(0.171)
Union member	0.111	−0.339	−0.099
	(0.294)	(0.320)	(0.370)
Staff adequacy	−0.168	0.586***	0.130
	(0.126)	(0.091)	(0.147)
Employment security	−0.345***	0.240**	−0.250**
	(0.118)	(0.100)	(0.119)
Problem-solving team	0.104	0.376*	0.314
	(0.247)	(0.208)	(0.232)
Pay for performance	−0.049	0.215	−0.010
	(0.198)	(0.172)	(0.208)
Formal training	0.009	0.168	0.105
	(0.273)	(0.234)	(0.236)
Informal training	−0.398	0.404**	−0.228
	(0.285)	(0.177)	(0.288)
Job satisfaction	—	—	−0.535***
			(0.082)
N	345	343	342
Prob > F	—	0.000	—
R-squared	—	0.306	—
Prob > Chi 2	0.000	—	0.000
Pseudo R-squared	0.099	—	0.170

Source: Authors' compilation.
Note: Control variables include gender, race-ethnicity, education, and age. Robust standard errors are in parentheses. Intention to quit job uses an ordered logit regression. Job satisfaction uses an OLS regression.
* $.05 < p < .10$.
** $.01 < p < .05$.
*** $p < .01$.

Table 3.4 The Effect of Trust, Stress, and Intrinsic Rewards on Turnover and Job Satisfaction

	Model 1: Turnover	Model 2: Job Satisfaction
Nursing assistant	−0.280	0.133
	(0.264)	(0.160)
Enhanced	−0.238	0.117
	(0.217)	(0.129)
Wage	−0.148*	0.005
	(0.088)	(0.046)
Union member	0.125	−0.109
	(0.321)	(0.232)
Staff adequacy	0.325**	0.108
	(0.147)	(0.092)
Employment security	−0.077	−0.066
	(0.123)	(0.058)
Problem-solving team	−0.038	0.489***
	(0.260)	(0.133)
Pay for performance	−0.139	0.194*
	(0.178)	(0.109)
Formal training	0.272	−0.199
	(0.297)	(0.160)
Informal training	−0.102	0.069
	(0.279)	(0.130)
Trust	−0.187***	0.135***
	(0.052)	(0.035)
Stress	0.209***	−0.162***
	(0.040)	(0.026)
Intrinsic reward	−0.054	0.232***
	(0.056)	(0.039)
N	336	335
Prob > F	—	0.000
R-squared	—	0.554
Prob > Chi 2	0.000	—
Pseudo R-squared	0.181	—

Source: Authors' compilation.
Note: Robust standard errors are in parentheses. Intention to quit job uses an ordered logit regression. Job satisfaction uses an OLS regression.
* $.05 < p < .10$.
** $.01 < p < .05$.
*** $p < .01$.

Table 3.A1 Mean Values for Key Variables (Nursing Assistants and Food Service Workers Only)

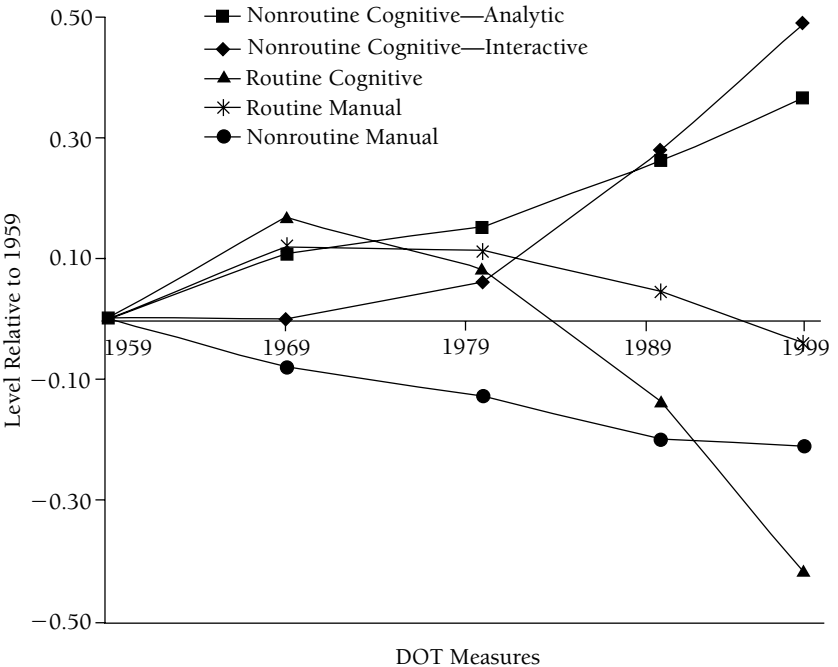
	Observations	Mean	Standard Deviation	Minimum	Maximum
Nursing assistant	469	0.65	0.477	0	1
Food service worker	469	0.35	0.477	0	1
Gender	469	0.84	0.367	0	1
White	456	0.64	0.482	0	1
Black	456	0.27	0.447	0	1
Hispanic	456	0.05	0.228	0	1
Other race	456	0.04	0.184	0	1
Less than high school	467	0.06	0.238	0	1
High school graduate	467	0.36	0.482	0	1
Some college	467	0.46	0.499	0	1
College graduate	467	0.11	0.318	0	1
Age	465	38.52	12.838	17	81
Enhanced	469	0.48	0.500	0	1
Wage	418	10.04	1.660	6.55	18.97
Union member	463	0.17	0.375	0	1
Employment security	429	3.01	0.995	1	4
Staff adequacy	464	2.73	1.092	1	4
Problem-solving team	461	0.58	0.495	0	1
Pay for performance	435	0.39	0.487	0	1
Formal training	467	0.66	0.473	0	1
Informal training	468	0.57	0.496	0	1
Trust index	456	12.44	3.359	4	17
"Supervisors treat workers fairly."	463	3.21	0.938	1	4
"Management is open and up front with me."	465	2.86	0.872	1	4
Management-employee relationship	464	3.21	1.170	1	5
How much do you trust management?	465	3.11	1.036	1	4

Table 3.A1 *Continued*

	Observations	Mean	Standard Deviation	Minimum	Maximum
Stress index	463	11.44	3.313	4	20
How often do you experience conflict?	468	2.41	1.024	1	5
How often do you have too many demands?	467	3.57	1.107	1	5
How often are you asked to do more than you can handle?	468	3.30	1.206	1	5
How often do you feel depressed at work?	467	2.15	1.112	1	5
Intrinsic reward index	461	12.94	2.741	4	16
"My job makes good use of my knowledge/ skills."	468	3.27	0.800	1	4
"My job requires that I learn new things."	467	3.29	0.869	1	4
"My job requires me to be creative."	467	3.06	0.938	1	4
"My job is challenging."	466	3.30	0.894	1	4
Intention to quit job	466	1.57	0.763	1	3
Job satisfaction index	465	9.45	1.859	3	12
How satisfied are you with your personal growth and development?	468	3.15	0.721	1	4
How satisfied are you with the resources to do your job?	467	3.08	0.765	1	4
Overall, how satisfied are you with your job?	468	3.21	0.743	1	4

Source: Authors' compilation.

Figure 4.1 Economywide Measures of Routine and Nonroutine Task Input, 1959 to 1998 (1959 = 0)



Source: Autor, Levy, and Murnane (2001, figure 1).

Table 4.1 Hypothesized Impact of Workplace Computerization on Four Categories of Job Tasks

	Routine Tasks	Nonroutine Tasks
Visual and manual tasks		
Examples	Picking and sorting engineered objects on an assembly line	Janitorial services
	Reconfiguring production lines to enable short runs	Truck driving
Computer impact	Computer control makes capital substitution feasible	Limited opportunities for substitution or complementarity
Information-processing cognitive tasks		
Examples	Bookkeeping	Medical diagnosis
	Filing and retrieving textual data	Legal writing
	Processing procedural interactions and transactions (for example, a bank teller)	Persuading and selling
Computer impact	Substantial substitution	Strong complementarities

Source: Autor, Levy, and Murnane (2001, table 1).

Table 4.2 Means of *Dictionary of Occupational Titles* Job Content Measures Overall and by Education Group at Midpoint of 1960 to 1998 Sample

	Task Measure (0 to 10 Scale)				
	1. Non-Routine Cognitive/ Analytic	2. Non-Routine Cognitive/ Interactive	3. Routine Cognitive	4. Routine Manual	5. Non-Routine Manual
Overall	3.76	2.46	4.61	3.90	1.24
High school dropouts	2.55	1.32	4.93	3.72	1.80
High school graduates	3.34	1.75	5.30	4.09	1.26
Some college	3.97	2.45	4.87	4.02	1.10
College plus	5.36	4.76	2.86	3.57	0.87

Source: Autor, Levy, and Murnane (2001, appendix table 2). Current Population Survey 1980, all employed workers ages eighteen to sixty-four merged with *Dictionary of Occupational Titles* (1977).

Table 4.3 Reorganization of Check Processing at Cabot Bank, 1988 and 1998

Tasks	Employee Who Carried Out Task in 1988	Average Hourly Wage Rate in 1988	Number of Full-Time Employees in 1988 per Million Checks	Employee Who Carried Out Task in 1998	Average Hourly Wage Rate in 1998	Number of Full-Time Employees in 1998 per Million Checks
Prepare checks by removing staples and ensuring checks face in same direction				Check preparer	$9.51	16
Key in amount on checks with clear printing or handwriting	Proof machine operator	$10.03	67	Computer		
Decipher amounts on checks with poor handwriting and key in amount				Keyer	$10.00 plus incentives for speed and accuracy	15
Balance the deposit				Image balancer	$11.00	22

Source: Autor, Levy, and Murnane (2002).
Note: Wage rates are in 1998 dollars.

Table 4.4 Reorganization of Exceptions Processing at Cabot Bank, 1994 and 1998

	Employee Who Carried Out Task in 1994	Average Hourly Wage Rate in 1988	Number of Full-Time Employees in 1994 per 65,000 Exceptions[a]	Employee Who Carried Out Task in 1998	Average Hourly Wage Rate in 1998	Number of Full-Time Employees in 1998 per 65,000 Exceptions
Verify signatures on checks written for large amounts	Exceptions processing clerk	$10.64	98			
Implement stop payment orders	Exceptions processing clerk	$10.64	98	Exceptions processing clerk	$13.50	470
Handle overdrafts	Exceptions processing clerk	$10.64	424			
Move information on checks from one exceptions processing clerk to another	Exceptions processing clerk	$10.64	30	Computer		

Source: Autor, Levy, and Murnane (2002).
Note: Wage rates are in 1998 dollars.
[a] There were 650 full-time exceptions processing clerks in 1994. To allocate these clerks among specialized jobs, we rely on a Cabot Bank manager's estimate that approximately 65 percent of clerks processed overdrafts, 15 percent processed stop payment orders, 15 percent verified checks, and the remainder moved boxes of checks from station to station.

Table 5.1 Demographic Characteristics of Workers in the Three Industries, 1986 and 1996

Industry[a]	1986			1996		
	Union Members	Female	Average Education (Years)	Union Members	Female	Average Education (Years)
Medical, dental and optical instruments	8.7%	49%	13.0	4.2%	47%	13.6
Miscellaneous fabricated metal products	30.0	23	11.8	19.6	22	12.2
Blast furnaces, steelworks, rolling and finishing mills	60.4	9	11.7	50.1	11	12.6

Source: Hirsch and Macpherson (1997).

[a] These are the CPS industry groupings and are broader than the four-digit SICs used in tables 5.2 through 5.4.

Table 5.2 Why Production Jobs Are Retained in the United States

	Medical Devices			
	Continuous, High-Volume	Batch Production	Valves	Steel
The skill level of local labor force is high	✓	—	✓	✓
Plant is close to R&D and/or engineering group	✓	✓	✓	—
Plant is close to customer	—	✓	✓	✓
Labor cost is small share of total cost	✓	✓	—	✓
Existing fixed capital stock is hard to move	✓	—	—	✓

Source: Authors' compilation.
Note: A check indicates that we judge this to be an important reason jobs are retained in the United States.

Table 5.3 Skill Requirements in Response to Technological Change

	Medical Devices			
	Continuous, High-Volume	Batch Production	Valves	Steel
High school diploma	Yes	Yes	No	No
Mechanical or machine skills	No	No	Yes	Yes
Problem-solving skills	Yes	No	Yes	Yes
Diagnostic or monitoring skills	Yes	No	Yes	Yes
Communication skills	Yes	Yes	Yes	Yes
Ability to learn basic computer skills	Yes	No	Yes	Yes
Flexibility in learning new jobs	Yes	Yes	Yes	Yes
Statistical skills or basic motor skills	No	No	Yes	Yes
Dexterity or high attention level	No	Yes	No	No

Source: Authors' compilation.

Table 5.4 New Human Resource Practices in Response to Technological Change

	Medical Devices			
	Continuous, High-Volume	Batch Production	Valves	Steel
Increased worker responsibility	Yes	No	No	Yes
Job rotation	Yes	Yes	Yes	Yes
Extensive training	Yes	No	Yes	Yes
Cross-training	Yes	Yes	Yes	Yes
Problem-solving teams	No	No	Yes	Yes
Pay-for-skills	Yes	No	No	Yes
Self-directed work teams	Yes	No	No	No

Source: Authors' compilation.

Table 5.A1 Employment and Wages in the Medical Industry, 1972 to 1992

Industry	Year	Number of Plants	Total Employment	Production Workers	Average Hourly Production Wage[a]
Surgical and medical instruments (3841)	1972	357	34,018	71%	$9.85
	1977	456	42,630	67	10.04
	1982	708	56,393	68	10.02
	1987	975	72,163	62	11.25
	1992	1,121	97,183	59	10.93
Surgical appliances and supplies (3842)	1972	618	42,512	67	9.66
	1977	773	52,686	68	10.24
	1982	1,126	67,507	66	9.25
	1987	1,295	77,732	65	9.95
	1992	1,458	94,556	64	9.91
X-ray, electromedical, and electrotherapeutic apparatus (3693)[b]	1972	75	11,006	58	11.36
	1977	187	30,125	54	11.98
	1982	231	47,553	48	10.99
X-ray, apparatus, and tubes (3844)[b]	1987	67	8,711	63	12.50
	1992	112	14,239	49	12.83
Electromedical equipment (3845)[b]	1987	209	29,154	45	11.30
	1992	330	39,836	45	11.91

Source: Longitudinal Research Database.

[a] Deflated by CPI.

[b] In 1987 SIC 3693 was reclassified into two separate industry categories: 3844 and 3845.

Table 5.A2 Employment and Wages in the Steel Industry, 1972 to 1997

Year	Total Employment	Production Workers	Average Hourly Production Wage[a]
1972	469,100	81%	$17.23
1977	441,900	79	20.99
1982	295,800	73	23.44
1987	188,100	78	19.06
1992	170,600	77	18.99
1997	144,080	79	20.14

Source: Census of Manufacturers (1972, 1977, 1982, 1992, 1997).
[a] Deflated by CPI (1992 dollars).

Table 5.A3 Employment and Wages in the Valve Industry, 1972 to 1992

Industry	Year	Number of Plants	Total Employment	Production Workers	Average Hourly Production Wage[a]
Industrial valves (3491)[b]	87	369	45,808	64%	$ 12.42
	92	453	51,432	65	12.28
Fluid power valves (3492)[b]	87	346	27,352	65	12.45
	92	340	28,436	65	12.04
Valve and pipe fittings (3494)[b]	72	648	86,035	70	11.54
	77	764	107,892	70	12.03
	82	1,063	113,984	65	11.73
	87	372	24,774	70	11.76
	92	225	15,942	74	11.76

Source: Longitudinal Research Database.
[a] Deflated by CPI.
[b] Prior to 1987 all valve plants were categorized as SIC 3494. Beginning in 1987, three categories are used: 3491, 3492, and 3494.

Table 6.1 Rank-and-File Workers Performing Listed Job Functions at the Twelve Firms, 1995

	Interpret Written Instructions	Maintain Production Logs	Use Basic Math Skills	Monitor Product Quality	Give Instructions to Computers
Leading complexity firms	90%	70%	87%	79%	48%
Standard complexity firms	63	10	33	81	17
Difference in means	27**	60***	54***	−2	31*

Source: Authors' compilation.
* $.05 < p < .10$.
** $.01 < p < .05$.
*** $p < .01$.

Table 6.2 Human Resources Policies in the Twelve Firms, 1995

Firm	Plant's Rank-and-File Workforce	Average Hourly Wage Rate	Benefits as a Percentage of Total Compensation	Total Compensation	Training		Firm Paternalism[a]	Percentage of Temps at Any One Time	Hesitance to Lay Off Workers[b]
					Basic	Specific			
LC Firms									
Inova	850	$9.00	33	$13.43	Yes	Yes	4	10	3
LC2	135	8.00	30	11.42	Yes	No	3	0	3
LC3	200	8.00	35	12.30	Yes	Yes	4	15	4
LC4	37	10.00	32	14.70	No	No	4	0	3
LC5	150	13.65	30	19.50	No	No	3	2	3
LC6	23	10.00	25	13.33	No	No	1	0	3
SC Firms									
Homepro	300	$8.00	25	$10.66	0	1	2	50	4
SC2	320	7.50	40	12.50	1	0	4	40	3
SC3	34	7.00	20	8.75	0	0	2	5	4
SC4	35	8.00	20	10.00	0	0	2	15	2
SC5	70	7.00	15	8.23	0	0	4	1	3
SC6	190	7.00	25	9.33	0	0	4	40	2
Means and Differences									
LC mean		9.78	30	14.11	0.50	0.33	3.17	4.5	3.17
SC		7.42	24	9.91	0.17	0.17	3.00	25.2	3.00
Difference in means		2.36**	6*	4.20***	0.33	0.17	0.17	−20.7**	0.17

Source: Authors' compilation.

[a] Paternalism pertains to the appropriateness of attending to the private well-being of employees and their families. It ranges from a high of 4 to a low of 1.

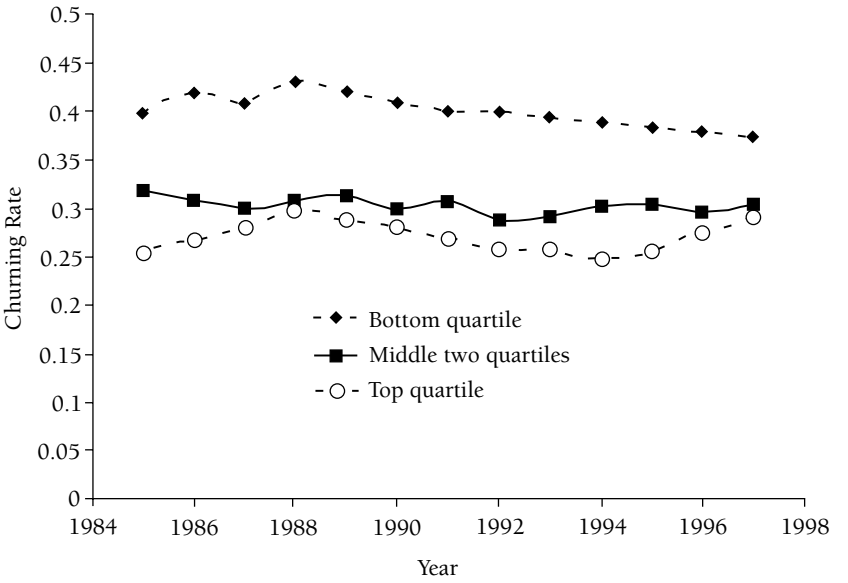
[b] Layoff policy: 1 = lays off immediately when demand falls more than 10 percent; 2 = lays off after a brief delay; 3 = lays off after moderate delay; 4 = lays off after substantial delay.

* $.05 < p < .10$.

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

*** $p < .01$.

Figure 7.1 Churning Rates in Food Manufacturing



Source: Authors' calculations.

Table 7.1 Job Grid for Ourtown School System Food Service

Job Title	Wage	Requirements
Assistant cook–food preparer	$7.33 to $7.48 an hour	High school or less
Cook	$7.62 an hour	Zero to five years' experience
	$8.05 an hour	Six to twelve years' experience
	$8.90 an hour	Twelve or more years' experience
Food supervisor	Salaried, approximately $17,000 yearly	High school or less

Source: Authors' compilation.

Table 7.2 Job Grid for Salads Supreme

Job Title	Wage	Requirements	Upward Mobility
Hand packer	$7.00 to 9.50 an hour	Literacy not required	Yes
Assistant cook or mixer	$7.50 to $10.75 an hour	Literacy not required	Yes
Cook, mixer, lead person, warehouse worker, or assistant supervisor	$10.50 to $13.50 an hour	Literacy required	Yes
Supervisor	$10.00 to $20.00 an hour (nobody making $20.00)	No high school	Yes
Production manager	Not able to determine	No high school	Yes
Plant manager or quality control manager	Not able to determine	High school	Little
Vice president	Not able to determine	College	Little
President	Not able to determine	College	Little

Source: Authors' compilation.

Table 7.3 Employment Growth for Total and Food Industry Employment in California, by Geographic Area, 1977 to 1997

	Total	Total Food	Food Manufacturing	Nondurable Wholesale	Eating and Drinking Places
Percentage increases					
California total	73	76	11	63	115
Agricultural counties	55	61	−7	60	103
Non-agricultural counties	110	100	36	67	91
Ratio of percentage increase to total for relevant area					
California total	1.00	1.05	0.16	0.86	1.58
Agricultural counties	1.00	1.11	−0.12	1.10	1.89
Non-agricultural counties	1.00	0.90	0.33	0.61	0.82

Sources: County Business Patterns data from U.S. Bureau of the Census (2002b) and U.S. Commerce Department (1977).

Table 7.4 Job Grid for Great Meals Institutional Facility

Job Title	Wage	Requirements	Upward Mobility
Hourly line staff: dishwashers	$7.00 to $8.00 an hour	No high school, no experience necessary, good attitude, good ethic	Yes
Hourly line staff: prep cooks, some entry-level cooks, or some part-time cashiers	$7.00 to $9.00 an hour	No high school	Yes
Cooks and senior cooks; cashiers	$9.00 to $13.00 an hour; $9.00 to $12.00 an hour	No high school	Yes
Supervisors, cashier, faculty club	$13.00 an hour	No high school	Yes
Management: chef manager or assistant manager	$25,000 to low $30s; chef can earn up to $45,000	About seven years' experience, some college but not necessary	Yes, but limited
Food-service director	Not able to determine	Most have college	Some
General manager	$50,000 to $60,000	Most have college	Some

Source: Authors' compilation.

Table 7.5 Quarterly Earnings Distribution, Food Manufacturing

		Earnings Distribution of Median Firm		
Average Size of Workforce	Average Earnings	Bottom Quartile Earnings	Top Quartile Earnings	Ratio of Top to Bottom
128	$5,498.16	$2,537.71	$9,888.67	3.90

Source: Authors' compilation.

Table 7.6 Women in the Top and Bottom Earnings Quartiles in the Food Manufacturing Workforce, 1985 to 1997

Earnings Quartile	1985	1990	1997
Bottom	52.88%	52.74%	51.67%
Top	11.59	14.17	18.53

Source: Authors' compilation.

Table 7.7 Worker Flows, Job Reallocation, and Churning (Quarterly)

	Mean	Median	Standard Deviation
Worker flow rate	21.39%	13.28%	28.09%
Job reallocation rate	9.11	4.00	17.50
Churning rate	12.28	7.84	20.25

Source: Authors' compilation.

Table 7.8 A Firm-Level Analysis of Churning Rates in Food Manufacturing

Variable	All Quartiles	Top	Bottom
Lagged churning	0.21910 (15.50)**	0.49788 (31.16)**	0.37194 (22.37)**
Time trend	−0.00139 (6.47)**	−0.00152 (5.46)**	−0.00249 (6.59)**
Employment size (log)	0.00279 (1.23)	0.00510 (1.45)	0.00926 (1.95)
Constant	0.11612 (10.05)**	0.18977 (12.11)**	0.42103 (18.88)**
Observations	5,366	3,187	3,254
R-squared	0.0521	0.2450	0.1471

Source: Authors' compilation.
Note: Absolute value of z-statistics in parentheses.
** Significant at 1 percent level.

Table 7.9 Determinants of Average Quarterly Earnings in Food Manufacturing

Worker characteristics	
Female	−0.554
	(7.60)**
Prime age (twenty-five to fifty-four)	0.457
	(4.74)**
Older (fifty-five and older)	−0.032
	(0.28)
Firm characteristics	
Size of firm	−0.047
	(2.72)**
Age of firm	0.030
	(0.84)
Time	−0.003
	(5.06)**
Churning rate	0.041
	(1.84)*
Sales per worker	0.030
	(2.99)**
Constant	8.437
	(55.83)**
Observations	2,789
R-squared	0.80

Source: Authors' compilation.
Note: Absolute value of z-statistics in parentheses.
* Significant at 5 percent level.
** Significant at 1 percent level.

Table 7.10 Probability of Promotion from the Bottom Earnings Quartile in Food Manufacturing

	1985 Cohort	1991 Cohort
Tenure	−0.011	−0.007
	(1.76)	(1.12)
= 1 if age of worker is twenty-five to fifty-four	−0.024	−0.161
	(0.14)	(0.80)
= 1 if age of worker is fifty-five or older	0.153	−0.003
	(0.36)	(0.01)
Quarterly firm churning	0.501	0.724
	(1.49)	(2.88)**
Firm size (log)	0.035	−0.533
	(0.12)	(2.84)**
Sales per worker (log)	0.143	−0.511
	(1.52)	(1.97)*
Observations	8,464	14,688

Source: Authors' compilation.
Note: Absolute value of z-statistics in parentheses. Worker fixed effects included.
* Significant at 5 percent level.
** Significant at 1 percent level.

Table 7.11 Worker Flows and Earnings for Food Subsectors in Selected States, 1994 to 1998

	Food Manufacturing	Grocery Wholesaling	Food Stores	Eating Places[a]
Total worker flow rate				
1994	0.312	0.411	0.517	—
1996	0.306	0.373	0.517	—
1998	0.357	0.402	0.724	1.760
Churning rate				
1994	0.311	0.405	0.510	—
1996	0.295	0.372	0.510	—
1998	0.356	0.380	0.669	1.252
Average quarterly earnings				
1994	$7,767	$7,856	$4,386	—
1996	8,348	8,470	4,455	—
1998	9,050	9,207	5,030	$2,830
Average quarterly earnings, new hires				
1994	$5,530	$5,540	$2,275	—
1996	6,117	6,016	2,256	—
1998	6,790	6,515	2,761	$2,529
Ratio of average earnings to new-hire earnings				
1994	1.40	1.42	1.93	—
1996	1.36	1.41	1.97	—
1998	1.33	1.41	1.82	1.12

Source: Authors' compilation.
Notes: Includes all firms. Combines Florida, Illinois, Maryland, and North Carolina.
[a] Eating places data restricted to a subset of these four states.

Figure 8.1 Job Quality and Internal Mobility Opportunities at the Four Firms

Job Quality \ Internal Mobility Opportunities	Low	Moderate	High
Low	Teleservices subcontractor: • Telemarketing sales	Telecom: • Telephone operator service Financial services: • Mass-market credit card service • Mass-market retail banking service	
Moderate		Financial services: • Segmented credit card service and sales • Segmented retail banking service	Financial services: • Mortgages • Auto financing Telecom: • Collections • Residential service and sales • Small-business service and sales
High	HR benefits subcontractor: • Customer service jobs		Telecom: • Large-business customer service

Source: Authors' compilation.

Table 8.1 Variation in Jobs and Mobility Across the Four Firms

	Teleservices	HR Benefits Administration	Retail Financial Services	Telecommunications
Job type	Telemarketing: sales; simple inbound service	Customer service	Retail banking: service Credit cards: segmented service and sales Mortgage: service Auto financing: segmented service and sales	Operators: service Residential: service and sales Small-business: service and sales Large-business: service
IT and work design				
IT: machine-paced calls	Yes	No	Retail banking: 100% Credit card, auto financing: 100% in service, 0% in sales Mortgage: 100%	Operators: 100% Residential: 100% Large-business: 0%
IT: electronic monitoring	Yes	No	Yes	Operators: 100% Residential: 100% Large-business: 0%
Customers per employee per day	In the hundreds; depends on amount of time clocked in	25	Retail banking, credit card: 200 Mortgage: 100 Auto financing: 75	Operators: 1,000 Residential: 75 Large-business: 20

Script use	High: mandatory	None	Short mandatory scripts in retail and credit card services; moderate, based on regulatory requirements in all segments	Moderate, based on regulatory requirements
Team organization	No	Yes: high levels of on-line and off-line teams	No on-line or off-line teams; some use of ad-hoc task forces; workers grouped in "teams" for incentive purposes	No on-line teams; some use of off-line teams
Compensation				
Pay range	Low: minimum wage	Moderate: $28,000 to $33,000	Moderate: $20,000 to $40,000	High: $30,000 to $50,000
Benefits	None or low	Moderate	Moderately high ("employer of choice")	High
Variable pay	Modest sales commissions	None	Modest sales commissions in some segments	Sales incentives
Skills and training				
Formal education	Low: diploma not required	High: 50% have college degrees	Moderate: diploma required; some have college; college sought and preferred in all segments	Moderate: diploma required; some have some college
Initial training	Low: two weeks or less	High: six weeks	Moderate: two to four weeks	High: twelve to sixteen weeks

(Table continues on p. 286.)

Table 8.1 *Continued*

	Teleservices	HR Benefits Administration	Retail Financial Services	Telecommunications
Ongoing training	None	Low to none	Moderate: extensive programs, not always accessible	Low
Employment security				
Company tenure	Low	Low	Moderate	High; union presence
Use of contingent, part-time staffing	Nearly all workers are formally "part-time"	Low to none	Low use of contingents; some part-time with benefits	Low to none
Outsourcing	NA	NA	Outsources outbound and some inbound sales (telemarketing); not customer service	Outsources outbound telemarketing; not customer service
Mobility				
Turnover	High: up to 400%	Moderate: 30%	Moderate to high: 30 to 100% by location	Low: less than 10%
Internal: job steps within call center	Entry-level; supervisor or trainer	Entry-level; specialized jobs; supervisor	Entry-level; sales specialistists; supervisor or trainer; high-level staff	Entry-level; ad-hoc specialists; supervisor or trainer

Internal: job opportunities in higher segments or departments	None	Almost none	Moderate: line banking and staff jobs in other functions; computer-technical; college strongly preferred	Operators: modest; other segments: high; service, sales, technical: college degree for account executives, management
External advancement opportunities	Low; no marketable skills attained	Moderate; college-educated use this as stepping-stone to better employment	Low for retail and credit card; moderate for other segments; experience with bank is valuable	Moderate because most alternatives do not pay as much, even for somewhat higher-skilled jobs

Source: Authors' compilation.

Table 8.2 The Telecommunications Firm: Job Quality and Worker Characteristics, by Market Segment

	Operators	Collections	Residential	Small-Business	Large-Business
Customers per day[a]	1,017	195	57	31	15
Time on phone per customer (seconds)[a]	54	272	452	846	711
Weeks of initial training for job[a]	2.1	5.0	11.6	12.4	6.9
Use of scripts (higher score = less scripting)[b]	1.96	2.71	2.96	3.23	3.54
Discretion with customers (higher score = more discretion)[b]	1.34	3.30	3.50	3.27	2.65
Expectation of layoff (higher = greater chance of being laid off)[b]	2.68	2.53	2.48	2.24	2.66
Emotional exhaustion (higher score = more fatigue)[b]	2.51	2.09	2.26	2.31	1.74
Job complexity (higher score = more complex)	2.85	2.98	3.15	3.13	3.52
Annual base earnings					
Workers	$31,485	$38,180	$41,391	$42,447	$47,440
Supervisors	59,145	59,695	60,701	61,040	57,153
Mean annual bonus					
Workers	2,941	4,840	2,704	3,396	5,410
Supervisors	5,973	6,103	5,856	6,085	7,050

Table 8.2 *Continued*

	Operators	Collections	Residential	Small-Business	Large-Business
Worker characteristics[c]					
Female					
Workers	86.0%	80.1%	78.6%	74.7%	80.3%
Supervisors	83.3	84.3	78.1	72.5	71.6
Minority					
Workers	25.7	30.9	43.8	37.5	33.5
Supervisors	23.2	29.6	31.1	28.2	34.3
Mean tenure (years)[d]					
Workers	12.4	9.6	6.7	7.9	13.9
Supervisors	20.0	19.0	14.8	15.2	17.4
Finished college[d]					
Workers	8.4%	17.8%	25.3%	28.7%	23.8%
Supervisors	33.3	23.5	36.2	49.2	22.6
Number of workers	717	198	992	310	220
Number of supervisors	108	68	155	64	34

Source: Authors' compilation.

[a] Drawn from mean responses to questions to workers on survey administered 2001. Because these are self-reports they are more useful for making comparisons across lines of business than as point estimates.

[b] Drawn from mean responses to questions on worker survey that make up multiple-item scales (responses range from 1 to 5).

[c] Drawn from company archival records.

[d] Taken from worker survey.

Table 8.3 The Telecommunications Firm: Selected Skill Requirements, by Market Segment

	Operators	Collections	Residential	Small-Business	Large-Business
Social interaction skills					
Listening	6.7	6.9	6.9	6.8	6.7
Persuading	4.3	6.3	6.2	6.3	5.1
Negotiating	4.1	6.7	6.3	6.6	5.3
Computer skills					
Word processing	2.2	3.9	2.5	3.5	4.4
Spreadsheet	1.8	3.5	2.3	3.1	4.5
E-mail	1.5	3.1	2.7	4.4	6.4
Navigating between screens	3.0	6.7	6.9	6.7	5.7
Product knowledge					
Features	4.7	5.5	6.8	6.6	6.1
Rates-pricing	4.7	3.7	6.6	6.4	5.6
Bundling	3.4	5.0	6.6	6.6	5.7
Number of supervisors	108	68	155	64	34

Source: Authors' compilation.
Note: Skill requirements are rated by supervisors on a scale from 1 (not important for the job) to 7 (very important). Ratings taken from 2001 survey of supervisors.

Table 8.4 The Telecommunications Firm: Internal Labor Market Patterns and Perceptions of Opportunity, by Market Segment

	Operators	Collections	Residential	Small-Business	Large-Business
Workers' number of different positions held with this employer	1.5	1.8	1.5	2.0	3.3
Workers who have held only one (current) position with employer	69.9%	63.1%	75.3%	53.8%	24.0%
Supervisors promoted from within	92.5	92.7	94.2	87.1	90.3
Workers' perceptions					
Career satisfaction	2.72[bc]	2.82[bc]	2.99[ac]	3.07[a]	3.19[ab]
Ease of "finding another job that is just as good as this one"	2.07	2.10	2.00[c]	2.15	2.35[b]
Present experience "would help me get a higher-paying job"	2.69[bc]	3.00[a]	3.02[a]	3.04[a]	3.18[a]
"Ease of internal movement"—finding another job inside the organization	2.47	2.53	2.49	2.44	2.69
Number of workers	717	198	992	310	220
Supervisors' expectations					
Likelihood that supervisees will move into better-paying job	3.68	3.75	3.64	3.56	3.70
Likelihood of promotion to management for supervisees	2.85[bc]	3.50[a]	3.47[a]	3.54[a]	3.47[a]

Table 8.4 *Continued*

	Operators	Collections	Residential	Small-Business	Large-Business
Number of supervisors	108	68	155	64	34

Source: Authors' compilation.

Notes: Figures represent mean responses to survey questions. "Career satisfaction" and "ease of internal movement" are summed scales with multiple items, responses ranging from a low of 1 to a high of 5. "Ease of finding another job" and "helpfulness of experience" are single-item responses ranging from a low of 1 to a high of 5. Supervisor expectations are also single-item responses ranging from a low of 1 to a high of 5. For workers' perceptions and supervisors' expectations, we report statistical comparisons of means across three groups. Where there are no indicators, the mean response in that category does not differ significantly from responses in *any* other categories.

[a] Indicates that the mean response for the group differed significantly from the mean response for the operator services group at $p < 0.05$.

[b] Indicates that the mean response for the group differed significantly from the mean response for the residential services group at $p < 0.05$.

[c] Indicates that the mean response for the group differed significantly from the mean response for the large-business group at $p < 0.05$.

Table 8.5 The Telecommunications Firm: Education and Internal Labor Markets

	Operators	Collections	Residential	Small-Business	Large-Business
Number of different positions held with this employer					
Finished high school or less	1.5	2.3	1.9	2.5	3.8
Some post–high school education but no college degree	1.5	1.7	1.5	2.0	3.6
College graduate	1.5	1.6	1.3	1.6	2.4
Tenure in years with this employer					
Finished high school or less	15.2	9.9	10.0	11.3	13.9
Some post–high school education but no college degree	9.3	7.1	6.1	7.6	9.3
College graduate	8.9	7.5	4.8	5.2	9.7
Number of workers	717	198	992	310	220

Source: Authors' compilation.

Table 8.6 The Telecommunications Firm: Geography and Internal Labor Markets

Number of Different Kinds of Company Offices Located "in This Building or Office Complex"	Share of Workers	Mean Number of Different Positions Held with Employer	Mean Number of Different Positions Held with Employer: Women Only	Mean Tenure with Organization in Years	Perceived Ease of Internal Movement
One	21%	1.38	1.39	7.4	2.41
Two	28	1.60	1.64	9.0	2.56
Three or more	51	1.89	1.98	9.8	2.43

Source: Authors' compilation.

Table 9.1 Demographics of Temporary Workers

		Education			Occupation			Wage		
	Total Sample	Some High School or HS Diploma	Trade Certification, Some College, or AA Degree	Bachelor Degree or Higher	Industrial	Clerical	Professional or Technical	Earning $8.00 an Hour or Less	Earning More Than $8.00 an Hour	Fast Wage Progressor Oversample
Number of respondents	4,171	1,006	2,042	1,093	1,105	1,870	1,169	1,277	2,867	915
Age (mean)	37.9	37.4	37.4	39.1	36.7	37.3	40.0	36.2	38.7	36.9
Female	56.7%	59.6%	57.5%	52.6%	37.3%	83.0%	32.6%	61.2%	54.5%	64.5%
Student	17.6	5.6	24.0	16.6	12.1	20.8	17.6	15.1	18.7	15.8
Working another job while temp	18.6	16.2	18.7	20.9	20.2	18.3	17.8	19.1	18.5	20.4
Temp contribution to family income (mean)[a]	3.4	3.3	3.3	3.5	3.3	3.2	3.7	3.1	3.5	3.3
Earning $8.00 an hour or less	30.8%	55.7%	29.4%	9.9%	61.6%	28.5%	5.4%	—	—	46.3%
Earning more than $8.00 an hour	69.2	44.3	70.6	90.1	38.4	71.5	94.6	—	—	53.7
Industrial	26.7	54.9	23.0	6.8	—	—	—	53.3	14.8	44.8
Clerical	45.1	36.3	52.1	40.9	—	—	—	41.7	46.6	53.4
Professional or technical	28.2	8.8	24.9	52.3	—	—	—	4.9	38.6	1.8

Source: Authors' compilation.

[a] Mean score based on a five-point scale: 1 = very little; 2 = some; 3 = about half; 4 = most; 5 = nearly all.

Table 9.2 Prior Education and Work Experience of Temporary Workers

		Education			Occupation			Wage		
	Total Sample	Some High School or HS Diploma	Trade Certification, Some College, or AA Degree	Bachelor Degree or Higher	Industrial	Clerical	Professional or Technical	Earning $8.00 an Hour or Less	Earning More Than $8.00 an Hour	Fast Wage Progressor Oversample
Number of respondents	4,171	1,006	2,042	1,093	1,105	1,870	1,169	1,277	2,867	915
Education										
Some high school	4.6%	18.9%	—	—	14.0%	1.3%	0.9%	10.9%	1.8%	6.5%
High school diploma	19.7	81.1	—	—	36.4	18.2	6.6	33.3	13.8	27.6
Trade certification or apprenticeship	6.9	—	14.0	—	10.7	5.9	5.2	9.2	6.0	7.0
Some college	32.0	—	64.9	—	27.0	40.3	23.1	31.5	32.1	34.1

Associate's degree	10.4	—	21.1	—	5.0	10.4	15.1	6.6	12.0	8.3
Bachelor's degree	20.7	—	—	78.3	5.3	19.3	37.4	6.4	27.1	13.4
Graduate degree	5.7	—	—	21.7	1.5	4.6	11.6	2.1	7.4	3.1
Percentage time working in three years prior to temping	77.1	72.4	79.1	77.9	75.1	74.4	83.1	72.1	79.2	73.9
Laid off in three years prior to temping	32.8	32.3	33.8	30.9	33.3	29.6	37.0	30.7	33.5	31.5
Unemployed just prior to temping	41.9	50.4	41.4	34.9	52.5	38.1	37.5	49.6	38.2	46.5
Own a computer	66.7	42.4	69.0	85.2	39.4	69.6	87.8	46.2	75.8	54.8
Use the Internet	71.6	44.4	74.8	91.1	41.3	78.0	89.9	47.8	82.1	60.1

Source: Authors' compilation.

Table 9.3 Employment Objectives of Temporary Workers

Reason for Temping	Total Sample	Education: Some High School or HS Diploma	Education: Trade Certification, Some College, or Associate's Degree	Education: Bachelor's Degree or Higher	Occupation: Industrial	Occupation: Clerical	Occupation: Professional or Technical	Wage: Earning $8.00 an Hour or Less	Wage: Earning More Than $8.00 an Hour
Number of respondents	4,171	1,006	2,042	1,093	1,105	1,870	1,169	1,277	2,867
Short-term temping	13.8%	9.0%	13.1%	19.6%	9.8%	17.6%	11.8%	13.8%	13.9%
Long-term temping	25.5	21.4	24.6	31.0	17.7	29.0	27.7	21.7	27.3
Short-term perm	22.6	30.0	21.7	17.6	31.6	17.7	21.6	26.9	20.6
Selective perm	38.0	39.5	40.6	31.8	41.0	35.6	39.0	37.5	38.2

Source: Authors' compilation.

Table 9.4 Training Participation of Temporary Workers

		Education			Occupation			Wage	
	Total Sample	Some High School or HS Diploma	Trade Certification, Some College, or Associate's Degree	Bachelor's Degree or Higher	Industrial	Clerical	Professional or Technical	$8.00 an Hour or Less	$8.00 an Hour or More
Number of respondents	4,171	1,006	2,042	1,093	1,105	1,870	1,169	1,277	2,867
Offered training (percentage)	42.9	37.1	45.0	44.1	30.9	50.0	42.6	38.1	44.9
Took training (percentage)	53.7	54.0	55.6	50.6	52.3	59.2	44.4	55.6	53.0
Mean hours of training	21.0	25.7	20.7	18.5	30.4	17.3	21.3	29.6	17.1

Source: Authors' compilation.

Table 9.5 Factors Affecting Training Participation of Temporary Workers

	Offered Training[a]	Training Participation[a]	Hours of Training
Low education	−.05**	−.03	1.27
Computer experience	.02***	−.03***	−3.08***
Age	.00	.00	−.07
Female	.08***	.08***	−4.33**
Also a student	.01	.00	−1.26
Long-term temporary	.07**	.13***	4.51*
Short-term permanent	−.02	.07	8.64***
Long-term permanent	.06**	.11***	4.14
Fast wage progressor oversample	.04*	.03	2.08
Pseudo R-squared (columns 1 and 2);[a] R-squared (column 3)	.02	.01	.03

Source: Authors' compilation.

[a] The offered training and training participation results are from binary probits; the values in columns 1 and 2 are changes in the probability of the dependent variable from a one-unit change in the independent variable.

* $p \leq .10$.

** $p \leq .05$.

*** $p \leq .01$.

Table 9.6 Career Outcomes of Temporary Workers

		Education[a]			Occupation[a]			Wage[a]		
	Total Sample	Some High School or HS Diploma	Trade Certification, Some College, or Associate's Degree	Bachelor's Degree or Higher	Industrial	Clerical	Professional or Technical	$8.00 an Hour or Less	More Than $8.00 an Hour	Fast Wage Progressor Oversample
Number of respondents	4,171	698	1,596	944	697	1,384	1,153	856	2,378	915
Permanent job	31.1%	34.4%	31.1%	31.6%	36.7%	32.2%	29.0%	35.6%	30.7%	28.1%
Permanent job through temp assignments	17.0	22.3	17.0	15.8	20.9	18.2	15.6	19.0	17.4	14.2
Wage growth 10 percent or more	30.2	28.9	25.9	21.9	25.4	29.7	20.7	21.7	27.0	47.3
Permanent job and/or wage growth 10 percent or more	53.9	57.4	50.4	47.1	55.1	54.3	44.8	51.9	50.8	64.7
Negative wage growth	11.1	10.1	9.1	6.1	11.5	10.0	4.6	12.4	7.0	20.7

Source: Authors' compilation.
[a] Data exclude oversample.

Table 9.7 Explanations for Career Outcomes of Temporary Workers

	Permanent Job			Wage Growth 10 Percent or More		
Low education	.01	−.01	.00	.01	.03	.03
Wage at time of survey ($8.00 an hour or less versus more than $8.00)	—	.00	.02	—	−.07***	−.07***
Occupation (clerical versus others)	—	.02	.03	—	.07***	.06***
Occupation (industrial versus others)	—	.04*	.05*	—	.04*	.03
Age	−.01***	−.01***	−.01***	.00	.00	.00*
Female	.00	.00	.01	−.03*	−.05***	−.05***
Also a student	−.11***	−.10***	−.09***	.02	.01	.02
Training taken	—	—	−.04**	—	—	.04**
Working another job while temping	—	—	−.05**	—	—	.03
Contribution of temp income to family income	—	—	.01	—	—	.00
Percentage time working in three years prior to temping	—	—	.00***	—	—	.00
Laid off in three years prior to temping	—	—	.00	—	—	−.01
Unemployed immediately prior to temping	—	—	.03**	—	—	.00
Computer experience	—	—	−.01	—	—	.00
Own a computer	—	—	.05***	—	—	−.01
Use the Internet	—	—	−.01	—	—	−.03
Fast wage progressor oversample	−.05***	−.06***	−.06***	.13***	.13***	.13***
Pseudo R-squared	.03	.03	.04	.02	.02	.03

Source: Authors' compilation.
Note: Results from binary probit estimation. The values in the table are changes in the probability of the dependent variable from a one-unit change in the independent variable.
* $p \leq .10$
** $p \leq .05$
*** $p \leq .01$

Table 9.A1 Regression Variable Descriptions and Summary Statistics

Variable Name in Table	Variable Description	Mean (Standard Deviation)	Minimum-Maximum
Offered training	Respondents who were offered the opportunity to take training	0.4 (.49)	0–1
Training participation	Respondents who took training, conditional on being offered	0.5 (.50)	0–1
Hours of training	Number of training hours respondent received in past year	21.0 (37.02)	1–400
Permanent job	Respondent obtained a permanent job	0.3 (.46)	0–1
Fast wage growth	Respondent experienced fast wage growth in year of maximum hours (1999 or 2000)	0.2 (.42)	0–1
Low education	Respondent has some high school education or a high school diploma	0.2 (.43)	0–1
Computer experience	Respondent's level of prior computer experience (ranging from "no experience" to "advanced experience")	3.3 (1.25)	1–5
Age	Age of respondent	37.9 (13.14)	17–82
Female	Female respondents	0.6 (.50)	0–1
Also a student	Respondent was also a student while at agency	0.1 (.35)	0–1
Long-term temporary	Reason for joining temp agency was to find long-term temporary work	0.3 (.44)	0–1
Short-term permanent	Reason for joining temp agency was to find short-term permanent work	0.2 (.42)	0–1
Long-term permanent	Reason for joining temp agency was to find long-term permanent work	0.4 (.49)	0–1
Fast wage progressor oversample	Respondent is part of the oversample of fast wage progressors	0.2 (.41)	0–1
Wage at time of survey	Respondent makes $8.00 an hour or less versus more than $8.00 an hour	0.3 (.46)	0–1

Table 9.A1 *Continued*

Variable Name in Table	Variable Description	Mean (Standard Deviation)	Minimum-Maximum
Occupation (clerical versus others)	Respondent's occupation is in the clerical field	0.4 (.50)	0–1
Occupation (industrial versus others)	Respondent's occupation is in the industrial field	0.3 (.44)	0–1
Training taken	Respondents who took training (no missing values)	0.2 (.42)	0–1
Working another job while at agency	Respondent was in another paid job while at agency	0.2 (.36)	0–1
Contribution of temp income to family income	Amount of overall family income coming from temp work (ranging from "very little" to "nearly all")	3.4 (1.40)	1–5
Percentage time working in three years prior to joining agency	Percentage time respondent was in paid work in the three years prior to joining the agency	77.1 (29.21)	0–100
Laid off in three years prior to joining agency	Respondent was laid off in the three years prior to joining the agency	0.3 (.47)	0–1
Unemployed immediately prior to joining agency	Respondent was unemployed immediately prior to joining agency	0.4 (.49)	0–1
Own a computer	Respondent owns a computer	0.7 (.47)	0–1
Use the Internet	Respondent uses the Internet	0.7 (.45)	0–1

Source: Authors' compilation.

Table 9.A2 Descriptive Information on Case-Study Survey Respondents

	Office Supplies	HealthTech	We Deliver
Number of temps employed	450 to 800	140 to 230	220 to 260
Number of valid survey responses	111	93	138
Survey response rate	14.7%	40.6%	50.0%
Female	72.5	89.3	88.9
Mean age (years)	30.6	40.5	30.8
Mean number of dependents	1.4	1.0	1.2
Student	29.4%	21.3%	19.1%
High school or less education	37.3	15.2	22.8
College degree or higher	10.9	28.3	14.7
Own a computer	48.2	82.8	61.0
Use the Internet	45.0	87.1	72.1
Not in paid work but looking	65.1	19.8	29.4
Objectives			
Short-term temps	11.1	28.1	2.9
Long-term temps	23.2	36.0	8.8
Short-term perms	34.3	5.6	35.8
Selective perms	31.5	30.3	52.6

Source: Authors' compilation.

Table 9.A3 Wage, Skill, and Career Growth Preferences of Temporary Workers

Most Important Attributes of Temp Work	Office Supplies	HealthTech	We Deliver
Competitive pay	1.35	1.12	1.72
Good benefits	0.68	0.29	0.92
Opportunity to obtain a permanent job	0.66	0.44	0.86
Long-term assignments	0.68	0.32	0.33
Skill development	0.35	0.32	0.31
Rapid advancement	0.28	0.08	0.28
Control over when and where one works	0.05	0.63	0.03

Source: Authors' compilation.

[a] *Score*: 3 = most important; 2 = second most important; 1 = third most important; 0 = not listed; seventeen choices offered.

Table 9.A4 Wage, Skill, and Career Growth Outcomes for Temporary Workers

	Office Supplies	HealthTech	We Deliver
Training			
Offered training	36.4%	73.9%	77.4%
Taking training (of those offered)	66.7	60.9	93.4
Median hours of training (of those taking)	15.0	5.0	27.5
Skills obtained[a]	3.43	3.77	3.79
Skills that are very marketable	3.41	3.71	3.72
Skills that are very specific to the organization(s) where I worked	3.45	3.82	3.85
Development–job matching scale[a]	3.69	3.78	3.93
Opportunity to enhance my skills through training	3.36	3.14	3.72
Opportunity to learn from other people at the workplace	3.95	4.10	4.07
Opportunity to learn new things on the job	4.00	3.99	4.04
Work that is closely matched to my skills and abilities	3.45	3.78	3.84
Interesting work	3.67	3.91	3.98
Pay equity–advancement scale[a]	2.76	2.98	2.69
Pay and benefits that are fair relative to other temporary or contract workers doing similar work	2.94	3.47	2.97
Pay and benefits that are fair relative to the work that I have performed	2.82	3.37	2.74
Pay and benefits that are fair compared to permanent workers doing similar jobs	2.18	2.68	2.17
Chance to move into a higher-level position	2.84	2.46	2.72
Chance to progress into better assignments	3.00	2.86	2.83
Not scaled: chance to increase my pay and benefits	2.66	2.73	2.85
Permanent job			
Accepted permanent job and no longer temping (at time of survey; location of job not known)	15.7%	26.9%	27.9%

Table 9.A4 *Continued*

	Office Supplies	HealthTech	We Deliver
Of above, obtained permanent job through temp assignments (at time of survey)	7.5%	42.3%	82.6%

Source: Authors' compilation.
[a] *Scale*: 1 = not at all; 3 = some extent; 5 = very great extent.

Table 10.1 Use of Temporary Help Among Auto Suppliers and Hospitals

	Temporary Help
Auto suppliers[a]	
Auto Supplier A	3–6%
Auto Supplier B	22
Auto Supplier C	22
Auto Supplier D	0
Auto Supplier E[b]	0–9
Hospitals[c]	
Food service	
Hospital A[d]	NA
Hospital E	11
Housekeeping	
Hospital A	NA
Hospital E	5
Nursing and medical assistants	
Hospital A	4
Hospital B	7
Hospital C	2
Hospital D	5
Hospital E	0
Clerical—unit administrative support	
Hospital A	8
Hospital B	0.4
Hospital C	0.3
Hospital D	7
Hospital E	11

Source: Authors' compilation.

[a] As a percentage of production employment.

[b] At the time of our interview Auto Supplier E had recently terminated all of its agency help.

[c] As a percentage of hours worked within occupation. Hospital F did not maintain any central records of temporary agency use and so is excluded from this table.

[d] The contract manager of food and environmental services of Hospital A reported using agency temporaries, but data on these hires were not available.

Table 10.2 Outsourcing in Hospitals and Public Schools

	Food Service	Custodial and Environmental Services	Transportation	Other
Hospital A	Management	Management	—	All of security Laboratory (some) Landscaping and grounds-keeping
Hospital B	Management	—	—	Laboratory (some)
Hospital C	—	Management	—	Landscaping
Hospital D	Management	—	—	—
Hospital E	Management	Management	—	All of security
Hospital F	Management	—	—	—
Public school A	Management	—	—	—
Public school B	Entire service	—	—	—
Public school C	—	—	Entire service	—
Public school D	Entire service	—	—	—
Public school E	Management	—	—	—
Public school F	—	—	Entire service	—
Public school G	Management	Entire service in half of buildings	—	—

Source: Authors' compilation.

Table 10.A1 Wages and Benefits in Low-Skill Occupations in Auto Suppliers, Hospitals, and Public Schools

Occupation	Starting Hourly Wage	Health Plan Offered	Union
Auto suppliers			
Auto supplier A	$10.60	Yes	No
Auto supplier B	9.62	Yes	No
Auto supplier C	13.28	Yes	No
Auto supplier D	15.51	Yes	Yes
Auto supplier E	12.35	Yes	Yes
Public schools			
Food service workers			
Public school A	6.82	No	Yes
Public school C	7.13	No	No
Public school D[a]	6.00	No	No
Public school E	7.40	—	Yes
Public school G	7.22	No	Yes
Custodial workers			
Public school A	8.40	—	Yes
Public school C	9.57	Yes	No
Public school D	11.49	Yes	Yes
Public school E	12.83	—	Yes
Public school G	10.16	Yes	Yes
Bus drivers			
Public school A	11.31	No	Yes
Public school C[a]	—	—	—
Public school D	11.42	Yes	Yes
Public school E	7.42	No	Yes
Public school G	11.25	Yes	Yes
Hospitals			
Food service workers			
Hospital A	6.40	Part-time prorated, 14% part-time	No
Hospital B	7.00	16% with partial benefits; 26% without benefits	No
Hospital C	8.03	9% without benefits	No
Hospital D	7.05	20% with partial benefits; 22% without benefits	No

(Table continues on p. 400.)

Table 10.A1 *Continued*

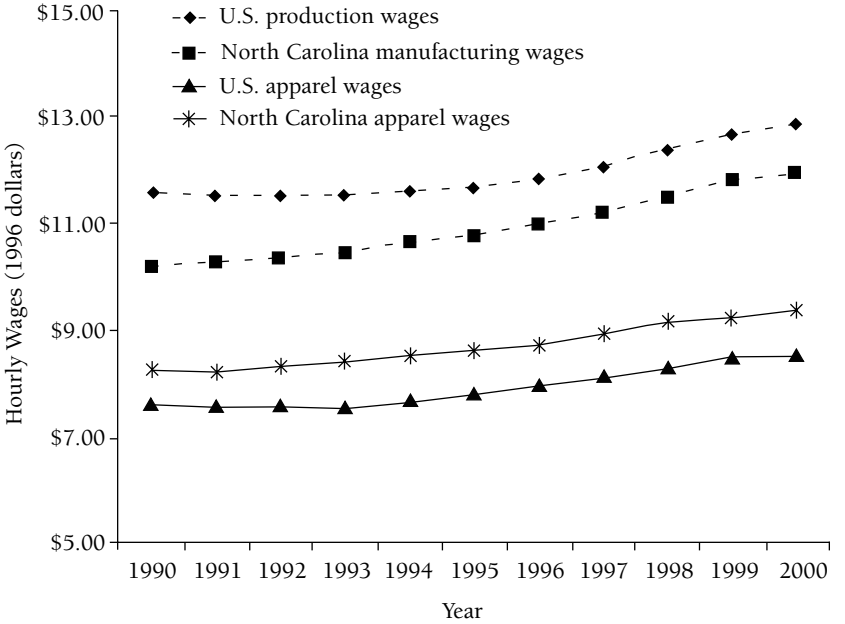
Occupation	Starting Hourly Wage	Health Plan Offered	Union
Hospital E	$6.48	Part-time prorated, 22% part-time	No
Hospital F	6.60	Part-time prorated, 65% part-time	Yes
Housekeepers			
Hospital A	6.40	Part-time prorated, 8% part-time	No
Hospital B	7.00	14% with partial benefits; 1% without benefits	No
Hospital C	7.95	5% without benefits	No
Hospital D	7.05	10% with partial benefits; 5% without benefits	No
Hospital E	6.48	Part-time prorated, 18% part-time	No
Hospital F	6.60	Part-time prorated, 27% part-time	Yes
Nurse assistants			
Hospital A	7.20	Part-time prorated, 22% part-time	No
Hospital B	7.40	10% with partial benefits; 12% without benefits	No
Hospital C	7.90	27% without benefits	No
Hospital D	8.67	23% with partial benefits; 4% without benefits	No
Hospital E	6.74	Part-time prorated, 5% part-time	No
Hospital F	8.96	Part-time prorated, 46% part-time	Yes
Clerical workers			
Hospital A	7.35	Part-time prorated, 3% part-time	No
Hospital B	8.00	13% with partial benefits; 23% without benefits	No
Hospital C	8.98	17% without benefits	No
Hospital D	8.23	33% with partial benefits; 5% without benefits	No

Table 10.A1 *Continued*

Occupation	Starting Hourly Wage	Health Plan Offered	Union
Hospital E	7.29	Part-time prorated, 22% part-time	No
Hospital F	7.50	Part-time prorated, 48% part-time	No

Source: Authors' compilation.
Note: Data reported are for lowest-skill occupation within a functional area.
[a] Occupation outsourced.

Figure 11.1 Real Wages of U.S. and North Carolina Production Workers



Source: U.S. Bureau of Labor Statistics (2002).
Note: For the North Carolina apparel series, the data represent production workers in the hosiery industry rather than the broader apparel and textiles industries.

Table 11.1 Unemployment Rates for the United States, North Carolina, and Hickory, North Carolina, 1990 to 2001

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
United States	5.6%	6.8%	7.5%	6.9%	6.1%	5.6%	5.4%	4.9%	4.5%	4.2%	4.0%	4.8%
North Carolina	4.2	5.8	6.0	4.9	4.4	4.3	4.3	3.6	3.5	3.2	3.6	5.5
Hickory SMSA	4.1	6.6	5.5	4.0	3.3	4.2	4.0	3.6	2.7	2.1	2.5	6.2

Source: U.S. Bureau of Labor Statistics (2002).

Table 11.2 Employment Statistics for the United States and North Carolina Hosiery Industry, 1980 to 2000

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Number of employees in hosiery (thousands)													
United States	63.8	69.5	71.2	69.2	69.4	67.9	66.8	63.3	60.6	58.1	54.4	50.7	49.9
North Carolina	44.9	47.6	46.1	45.2	44.3	43.3	41.4	39.2	37.1	35.8	33.2	31.2	29.0
North Carolina share of hosiery employment (percentage)	70.4	68.5	64.7	65.3	63.8	63.8	62.0	61.9	61.2	61.6	61.0	61.5	58.1
Employment in hosiery as percentage of total employment[a]													
United States	.064	.065	.060	.059	.059	.056	.054	.051	.048	.045	.041	.038	.037
North Carolina[b]	1.89	1.80	1.48	1.47	1.42	1.33	1.23	1.13	1.05	0.98	0.88	0.81	0.73

Source: U.S. Bureau of Labor Statistics (2002).

[a] Total employment figures are based on civilian employment.

[b] Total employment figures for North Carolina exclude agricultural employment.

Table 11.3 U.S. Hosiery Production and Sales, 1990 to 1998

	1990	1991	1992	1993	1994	1995	1996	1997	1998
Volume of U.S. hosiery production (millions of pairs)	3,842	4,024	4,173	4,279	4,340	4,198	4,434	5,129	5,443
Retail dollar volume of hosiery sales (millions of dollars)	$6,000	$5,793	$6,118	$6,942	$7,097	$7,165	$7,633	$7,847	$7,477
Retail dollar volume of hosiery sales by distribution channel									
Department stores	11.9%	12.0%	10.9%	10.8%	10.2%	9.3%	9.9%	9.3%	9.9%
Specialty stores	8.7	9.7	10.4	9.9	9.2	9.2	9.5	9.7	9.8
Chains	12.6	13.1	13.1	11.5	11.0	12.0	11.9	11.9	11.8
Discount stores	37.9	39.8	40.8	40.8	44.6	46.1	46.4	49.0	48.1
Grocery or drugstore	17.6	13.4	12.7	13.8	12.6	11.3	10.2	8.7	7.5
Other	11.3	11.9	12.1	13.1	12.4	12.2	12.0	11.2	12.8

Source: U.S. Bureau of Labor Statistics (2002).
Note: The hosiery category is a combination of SIC codes 2514 and 2524.

Table 12.1 Production Employee Characteristics at SP

	Number of Workers	Assemblers	Temporary	Less Than One Year	One to Four Years	Four to Six Years	Six to Ten Years	More than Ten Years
Massachusetts								
Urban	233	63%	17%	12%	27%	14%	12%	36%
Suburban	285	71	13	12	33	26	13	16
Ohio	634	54	0.6	4	35	17	20	25
Florida	482	46	1.1	17	37	18	22	7

Source: Authors' compilation.

Table 12.2 "Are You Making More Money Under the VAG Plan?": Responses of SP Workers in the Massachusetts Plants

Urban Massachusetts plant	
Strongly disagree	26.21%
Disagree	22.76
Neither agree nor disagree	25.52
Agree	14.48
Strongly agree	11.03
Suburban Massachusetts plant	
Strongly disagree	20.23
Disagree	21.97
Neither agree nor disagree	28.32
Agree	17.92
Strongly agree	11.56

Source: Authors' compilation.

Table 12.3 Productivity Effects of Changes in Human Resource Practices at SP's Plants in Three States

State	Method of Pay	Change in Productivity After Change in Human Resource Practice (Sales Per Employee)
Massachusetts	Piece-rate to VAG	−0.72% per employees
Florida	Time-rate to VAG	+0.2% per employee
Ohio	No change	—

Source: Authors' compilation.

Table 12.4 Explaining Satisfaction By Assimilation Type for Massachusetts and Other Plants

	Number of Employees	Supervisors	Employment Security	Meaningful Jobs	Company Practice	Pay	Working Conditions	Coworkers	Overall Satisfaction
Ohio	615	3.54	3.81	3.56	2.73	2.44	3.57	3.40	3.47
English		(1.35)	(1.12)	(1.25)	(1.15)	(1.25)	(1.21)	(1.28)	(1.19)
Florida	463	3.41	3.99	3.65	2.95***	2.75***	3.37	3.43	3.60
English		(1.34)	(1.02)	(1.23)	(1.18)	(1.24)	(1.17)	(1.28)	(1.09)
Massachusetts	160	3.36	3.62*	3.16**	2.89**	2.47**	3.04	3.21*	3.13**
English		(1.33)	(1.32)	(1.35)	(1.28)	(1.33)	(1.34)	(1.27)	(1.25)
Vietnamese	168	3.33	4.10	3.77	3.29	2.78	3.12	3.58	3.56
		(1.27)	(0.95)	(1.17)	(1.16)	(1.34)	(1.21)	(1.20)	(1.05)
Cape Verde	164	3.65	3.42***	3.35	3.16	2.77	3.12	3.21*	3.33
		(1.38)	(1.43)	(1.32)	(1.28)	(1.43)	(1.32)	(1.40)	(1.40)

Source: Authors' compilation.
Note: Standard deviation in parentheses. Tests of means by groups are conducted.
* $p < 0.1$.
** $p < 0.05$.
*** $p < 0.001$.

Table 12.5 Impact of Change in Method of Pay on the Change in Satisfaction

	Means	Standard Deviation
Florida	3.00	1.06
Massachusetts suburban (LOC2)		
From piece-rate to VAG	3.04	1.29
From time-rate to VAG	3.11	1.21
Massachusetts urban (LOC1)		
From piece-rate to VAG	2.88	1.40
From time-rate to VAG	3.03	1.24

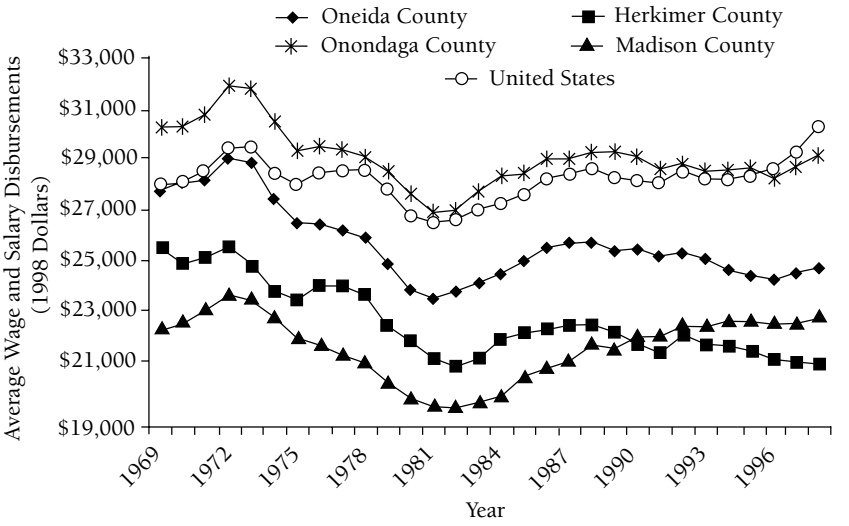
Source: Authors' compilation.
Notes: For Massachusetts it is variable, Q47a/b; for Florida, it is variable, Q37. All of these variables indicate the change of satisfaction after changing the plans. No such a question is asked for Ohio.

Table 12.6 Effect of Changes in Work Effort and Pay Levels on Changes in Satisfaction

Independent Variables	Change in Satisfaction		
	Massachusetts from Piece-Rate to VAG	Massachusetts from Time-Rate to VAG	Florida, from Time-Rate to VAG
Working harder	0.14	0.11	0.25
Making more money	0.55	0.55	0.40

Source: Authors' compilation.
Note: All variables are measured in Likert scale from 1 to 5.

Figure 13.1 Changes in Average Wage and Salary in Oneida, Madison, Onondaga, and Herkimer Counties, 1969 to 1998



Source: U.S. Bureau of Economic Analysis.

Table 13.1 Characteristics of Ten Central New York Manufacturing Establishments

Establishment	Strategy	Location	Age	Ownership	Part of Larger Organization	Employment	Competitors	Market
Materials	High-road	Rural	1980	Private, local headquarters	No	120	Few	Stable growth
Large Metal	High-road	Urban	1801	Private, local headquarters	Yes	505	Few	Cyclical
Machine Parts	High-road	Metropolitan	1949	Private, local headquarters	Yes	130	Many (domestic)	Highly cyclical
Electrical Parts	High-road	Metropolitan	1945	Public, headquarters overseas	Yes	450	Few	Very uneven; recent sharp contraction after rapid growth
IT Parts	High-road	Metropolitan	1970	Public, local headquarters	Yes	450	Few	Steady growth and rapid contraction
Small Fabrication	Low-road	Rural	1816	Private, headquarters elsewhere	Yes	490–505	Few	Cyclical
Small Machines	Low-road	Rural	1986	Private, headquarters elsewhere	Yes	120	Many	Stable growth
Medium Fabrication	Low-road	Urban	1989	Private, local headquarters	Yes	117	Few	Steady growth
Small Parts	Middle-road	Rural	1981	Private, headquarters overseas	Yes	275	Many and growing	Cyclical
Medium Machines	Middle-road	Urban	1988	Private, local headquarters	Yes	115	Few	Steady growth

Source: Authors' own interviews and survey.

Table 13.2 Labor Force, Compensation, and Employment Practices

Establishment	Residence Labor Force	Turnover	Average Age	Minority	Female	Initial Hourly Wage	Pay Grades	Two-Tier Wages	Labor Union
Materials	Local	Low	34	5%	57%	$8.25	Few	No	No
Large Metal	Mainly in that town	Modest	48	<1	<1	$7.23 to $7.63	Many	Yes	Yes
Machine Parts	Some more than thirty miles away	6%	N/A	2	<1	$9.00 ($10.00 to $12.00 with 720 hours of BOCES)	Few	No	No
Electrical Parts	Some more than thirty miles away	13%	35	2	<1	$7.00	6	No	No
IT Parts	Some more than thirty miles away	10%	35	15	<1	$7.50	8	No	No
Small Fabrication	Local	Low	N/A	2	<1	$8.22 to $8.99	6	Yes	Yes
Small Machines	Local	Modest	28	1	18	$7.00	Few	Yes	No
Medium Fabrication	Mainly in that town	5%	38	<1	<1	$7.00	Few	No	Yes
Small Parts	Local	Stable core; rest high	38	2	56	$6.00	11	No	No
Medium Machines	Mainly in that town	10%	40	<1	20	$7.00	Few	No	No

Source: Authors' own interviews and survey.

Table 13.3 High-Performance Work Practices

Establishment	Profit-Sharing	Employee Stock Ownership	Other Incentive Pay	Teams	Quality Control	TQM	Information-Sharing
Materials	Yes	No	Hybrid of profit-sharing and individual incentive pay	Yes	Combined with teams	No	All-employee monthly meeting
Large Metal	Yes	Yes	Individual incentive pay	Yes	Combined with teams	Yes	All-employee quarterly meeting
Machine Parts	Yes	Yes	None	Yes	No	Yes	All-employee quarterly meeting
Electrical Parts	No	Yes	None	Yes	Yes	Yes	All-production employee monthly meeting
IT Parts	Yes	No	None	Yes	No	Yes	All-employee monthly meeting
Small Fabrication	No	No	None	No	No	No	All-employee meetings twice a year
Small Machines	No	No	None	No	No	No	No
Medium Fabrication	No	No	None	No	No	No	All-employee monthly meeting
Small Parts	No	No	None	Yes	Combined with teams	No	All-employee monthly meeting
Medium Machines	No	No	Individual incentive pay	No	Yes	Yes	All-employee monthly meeting

Source: Authors' own interviews and survey.

Table 13.4 Basic Worker Characteristics

	Small Parts	Materials	Large Metal
Total labor market experience (mean years)	16.12	14.81	29.52***
Tenure (mean years)	4.47	4.30	21.77***
Mean age	37.96**	34.38	47.97***
Mean hourly wage	$10.36	$9.79	$13.07***
Commuting time (mean minutes)	25.51***	14.72	20.69***
Proportion male	43.68%	42.25%	97.74%***
Proportion with at least some college	47.31	47.14	43.56
Proportion white	97.70	95.77	94.23
Proportion with extra job	30.54	36.62	27.78
Proportion married	59.88***	39.44	72.62***
Proportion married with working spouse	77.98	90.00	64.25***
Proportion with a dependent child	44.58	53.52	30.74***
Proportion of workers who grew up in the area	57.32***	78.87	87.22*
Number of respondents	174	71	269

Source: Authors' own survey of employees at Small Parts, Materials, and Large Metal.
* The difference between Small Parts and Materials or between Large Metal and Materials statistically significant at the 10 percent level.
** The difference between Small Parts and Materials or between Large Metal and Materials statistically significant at the 5 percent level.
*** The difference between Small Parts and Materials or between Large Metal and Materials statistically significant at the 1 percent level.

Table 13.5 Worker Outcomes: Interfirm Comparisons

	Small Parts	Materials	Large Metal
Empowerment			
"I have a lot to say about what happens on my job."	2.52***	2.04	2.51***
"My job allows me to take part in making decisions that affect my work."	2.40***	1.86	2.47***
Communication			
"Management is usually open about sharing company information with employees at this company."	2.16***	1.89	2.91***
How often do you personally communicate about work issues with managers or supervisors in your work group or work team? (proportion of employees who replied "at least weekly")	85.09%	88.73%	73.51%***
How often do you personally communicate about work issues with managers or supervisors outside of your work group or work team within the firm? (proportion of employees who replied "at least weekly")	49.11	39.44	36.60
How often do you personally communicate about work issues with workers outside of your work group or work team within the firm? (proportion of employees who replied "at least weekly")	57.52**	71.83	40.38***
How often do you personally communicate about work issues with technical experts outside of your work group or work team, such as engineers, technicians, accountants, or consultants within the firm? (proportion of employees who replied "at least weekly")	47.32***	25.35	20.45

Table 13.5 *Continued*

	Small Parts	Materials	Large Metal
Effort			
How much effort do you put into your work beyond what your job requires? (1 = none, 4 = a lot)	3.49	3.55	3.28***
Relative effort defined as the effort put into a typical hour of work versus the effort put into a typical hour of watching TV (0 = hardly any at all, 10 = all your energy)	5.09***	6.51	4.13***
Days missed in the last year	10.90	11.56	18.32***
Hours worked per week	40.24	41.01	41.72
"My effort at work affects my pay."	2.09***	1.69	2.28***
Teamwork and peer monitoring			
"I help my coworkers when they need it."	1.54***	1.35	1.74***
To what extent have other employees at this company taught you job skills, shortcuts, problem-solving, or other ways to improve how you work? (1 = to a great extent, 4 = not at all)	2.02	1.87	2.10**
"My effort at work is affected by the effort of my coworkers."	2.19	2.21	2.30
"The work of my coworkers affects my pay."	2.79	2.89	2.37***
"If I saw a coworker slacking off, I would say something to that worker."	2.44	2.30	2.92***
Proportion of workers who have ever said anything to a coworker when they saw that worker slack off	57.23%	68.57%	41.51%***
Commitment			
"I am willing to work harder than I have to in order to help this company succeed."	1.90***	1.50	2.14***
"I would take almost any job to keep working for this company."	2.74**	2.48	2.90***

(Table continues on p. 510.)

Table 13.5 *Continued*

	Small Parts	Materials	Large Metal
"I would turn down another job for more pay in order to stay with this company."	2.96***	2.55	3.22***
Trust			
"I am treated fairly by the company."	2.17**	1.88	2.43***
"To what extent do you trust management at this company?" (1 = to a great extent, 4 = not at all)	2.25	2.41	3.07***
"In general, how would you describe relations in your workplace between management and employees?" (1 = very good, 5 = very bad)	2.46	2.66	3.19***
Job satisfaction			
"All in all, how satisfied would you say you are with your job?" (1 = very satisfied, 4 = very dissatisfied)	2.13*	1.99	2.26***
Intrinsic rewards			
"My job makes good use of my knowledge and skills."	2.45***	2.09	2.38***
"What I do at work is more important to me than the money I earn."	2.90	2.76	3.21***
Job stress			
"My job is stressful."	2.14	2.22	2.25
Number of respondents	174	71	269

Source: Authors' own survey of employees at Small Parts, Materials, and Large Metal.
Note: Unless otherwise indicated, each respondent is given four choices: 1 = strongly agree; 2 = agree; 3 = disagree; and 4 = strongly disagree.
* The difference between Small Parts and Materials or between Large Metal and Materials statistically significant at the 10 percent level.
** The difference between Small Parts and Materials or between Large Metal and Materials statistically significant at the 5 percent level.
*** The difference between Small Parts and Materials or between Large Metal and Materials statistically significant at the 1 percent level.

Table 13.6 Worker Outcomes: Intrafirm Comparisons Between Participants and Nonparticipants

	Small Parts		Large Metal	
	Participants	Nonparticipants	Participants	Nonparticipants
Empowerment				
"I have a lot to say about what happens on my job."	2.26***	2.68	2.34***	2.69
"My job allows me to take part in making decisions that affect my work."	2.14***	2.54	2.29***	2.68
Communication				
"Management is usually open about sharing company information with employees at this company."	1.93***	2.29	2.87	2.94
How often do you personally communicate about work issues with managers or supervisors in your work group or work team? (proportion of employees who replied "at least weekly")	91.07%*	78.57%	78.01%*	68.60%
How often do you personally communicate about work issues with managers or supervisors outside of your work group or work team within the firm? (proportion of employees who replied "at least weekly")	53.57	43.64	42.14**	29.41
How often do you personally communicate about work issues with workers outside of your work group or work team within the firm? (proportion of employees who replied "at least weekly")	65.45*	48.21	46.43**	32.77

How often do you personally communicate about work issues with technical experts outside of your work group or work team, such as engineers, technicians, accountants, or consultants within the firm? (proportion of employees who replied "at least weekly")	49.09	43.64	26.09**	15.00
Effort				
How much effort do you put into your work beyond what your job requires? (1 = none, 4 = a lot)	3.66***	3.38	3.39***	3.15
Relative effort, defined as effort put into a typical hour of work versus the effort put into a typical hour of watching TV (0 = hardly any at all, 10 = all your energy)	5.32	5.00	4.70***	3.42
Days missed in the last year	10.48	9.79	18.18	18.54
Hours worked per week	41.95***	39.38	42.41*	40.91
"My effort at work affects my pay."	1.98	2.15	2.10***	2.50
Teamwork and peer monitoring				
"I help my coworkers when they need it."	1.49	1.54	1.67	1.81
To what extent have other employees at this company taught you job skills, shortcuts, problem-solving, or other ways to improve how you work? (1 = to a great extent, 4 = not at all)	1.93	2.05	1.92***	2.28
"My effort at work is affected by the effort of my coworkers."	2.18	2.21	2.18**	2.40
"The work of my coworkers affects my pay."	2.93	2.75	2.21***	2.56
"If I saw a coworker slacking off, I would say something to that worker."	2.40	2.46	2.78***	3.05
Proportion of workers who have ever said anything to a coworker when they saw that worker slack off	57.89%	56.36%	43.17%	41.18%

(Table continues on p. 516.)

Table 13.6 *Continued*

	Small Parts		Large Metal	
	Participants	Nonparticipants	Participants	Nonparticipants
Commitment				
"I am willing to work harder than I have to in order to help this company succeed."	1.82	1.95	2.00***	2.25
"I would take almost any job to keep working for this company."	2.61*	2.84	2.75***	3.06
"I would turn down another job for more pay in order to stay with this company."	2.89	3.03	2.08***	3.38
Relative knowledge, defined as knowledge of the job and the firm knowledge of favorite TV show (0 = hardly any knowledge, 10 = complete knowledge)	—	—	1.95	1.50
Relative interest, defined as interest in the quality of the job and the firm versus interest in favorite TV show (0 = hardly any interest, 10 = total interest)	—	—	2.91	2.26
Trust				
"I am treated fairly by the company." (1 = strongly agree, 4 = strongly disagree)	1.96***	2.31	2.33**	2.56
To what extent do you trust management at this company? (1 = to a great extent, 4 = not at all)	2.07**	2.36	2.96**	3.18
In general, how would you describe relations in your workplace between management and employees? (1 = very good, 5 = very bad)	2.37	2.54	3.08**	3.33

Job satisfaction				
All in all, how satisfied would you say you are with your job? (1 = very satisfied, 4 = very dissatisfied)	2.00**	2.22	2.15***	2.39
Intrinsic rewards				
"My job makes good use of my knowledge and skills."	2.23**	2.59	2.27**	2.52
"What I do at work is more important to me than the money I earn."	2.81	2.98	3.07***	3.37
Job stress				
"My job is stressful."	2.13	2.10	2.23	2.28
Number of respondents	57	111	141	121

Source: Authors' own survey of employees at Small Parts and Large Metal.
Note: Unless otherwise indicated, each respondent is given four choices: 1 = strongly agree; 2 = agree; 3 = disagree; and 4 = strongly disagree.
* The difference between Small Parts and Materials or between Large Metal and Materials statistically significant at the 10 percent level.
** The difference between Small Parts and Materials or between Large Metal and Materials statistically significant at the 5 percent level.
*** The difference between Small Parts and Materials or between Large Metal and Materials statistically significant at the 1 percent level.