

An Employment Systems Approach to Explain a Change in Union Membership Rate

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Abstract

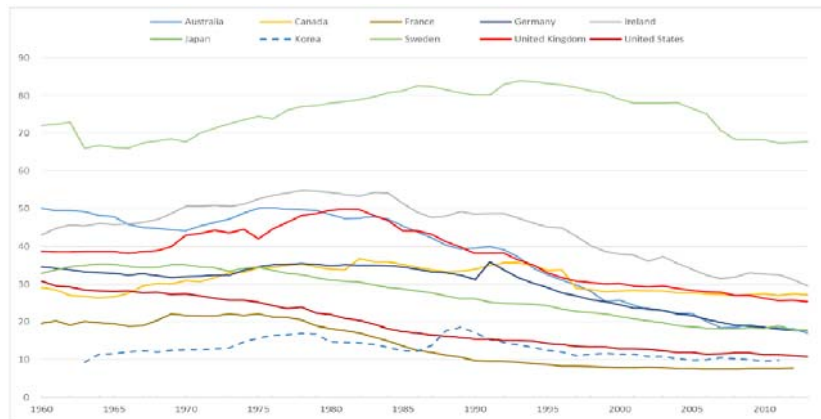
This paper investigates how an employment system affects union membership rate at the workplace, using the four waves of the Workplace Panel Survey biannually conducted by the Korea Labor Institute from 2005 to 2011. The dissatisfaction/disutility hypothesis that predicts human resource management (HRM) as a substitute for labor unions may work differently by the nature of HR practices. We analyze three sets of HR practices, work organization, investments and inducements strategies, performance-enhancing expectations, rather than each HR practice or HR practices taken as a coherent bundle, in the contexts in which labor unions are already organized. The results from the panel fixed effects model indicate that the change in work organization and performance-enhancing expectations for individuals had no significant relationship with the change in union membership rate, but the change in long-term investments and inducements and performance-enhancing expectations for group/firm had a significantly negative relationship with the change in union membership rate. These results are generally consistent with an alternative measure of union membership rate obtained from labor unions, except the result for work organization which becomes marginally significant. Finally, these results are robust with the addition of lagged variables.

Keywords: Union membership rate; Human Resource Management; Work organization, Investment and inducement strategies; Performance-enhancing expectation

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Union Density in Some OECD Countries



Some Possible Explanations

- Structural factors(Chaison & Rose, 1991)
 - Shift from manufacturing to service
 - Demographic change
 - More women in the labor force
 - Increases in education and skill levels
- Decline in demand for union services
 - Unions are not doing a good job of responding to the desires of a changing workforce and of overcoming the negative stereotypes of unions
 - Employers have improved their responsiveness to employees' needs
 - Increased protective legislation
- Employers' resistance to unions

Research Question

- How do human resources management (HRM) practices affect union membership rate?
 - Do HRM practices substitute unions?
- Kochan, McKersie, & Chalykoff(1986)
 - HRM expanded in the US nonunion and unionized establishments in the 1970-80s
 - Union density declined in the 1970-80s
 - HRM → Union density?

Scattered Findings

Studies	Countries	Findings	Summary
Kochan, McKersie, & Chalykoff(1986)	US	Union avoidance strategy & workplace innovation(= Σ 12 HRM practices) reduced union density and the # of union members in the green field	–
Fiorito, Lowman, & Nelson(1987)	US	HRM index (= Σ 12 HRM practices) lowered the probability of union's winning in the union election	-
Milner & Richard(1991)	UK	Employee participation program increased the probability of union's being recognized	+
Machin & Wood(2005)	UK	HRM did not affect union density in Britain(may be supplementary)	Neutral
Roche & Turner(1994)	Ireland	Only compensation(individual/group incentive + decentralization of collective bargaining) reduced the probability of union's being recognized	-
Chen(2007)	Taiwan	Failed to replicate the outcomes of Roche & Turner(1994), but found the positive relationship between an HRM system index & union density	+
Park & Kim(2014)	Korea	Individual HR practices have both positive and negative impacts on union density	- & +

| Scattered Findings

- Limitation of data analyzed in the empirical papers
- Different IR systems by country
- Lack of theories on the relationship between HRM & unions

| Contributions

- Limitation of data analyzed in the empirical papers
 - The Workplace Panel Survey(WPS) is the best in that it is cross-section and panel data, measured 4 times over 7 years, and contains the comprehensive measures of HR practices and IR variables at the establishment level
- Different IR systems by country
- Lack of theories on the relationship between HRM & unions
 - Piecemeal vs. Holistic approach; or the **Middle** approach
 - The dissatisfaction/instrumentality hypothesis may work differently due to the nature of HRM practices

Employers' Strategy toward Unions

- Two basic strategies that employers can choose:
 - Union embracement
 - Union avoidance
 - Union suppression
 - Union substitution
- Not mutually exclusive
 - Employers can fire union organizers and implement an employee participation program at the same time

HRM as Union Substitution

- New HRM pattern in 1970s(Kochan& Katz, 1988)
 - Different from the traditional personnel management
 - Team, compensation to workers' skill and knowledge, various communication channel, grievance procedure, no layoff policy, and training & development
 - Motivated by
 - Behavioral science predicting that happy workers would be more productive
 - Employers' anti-unionism

| HRM as Union Substitution

- Demand side for Unions: Dissatisfaction/Disutility hypothesis (Charlwood, 2002)
 - HRM would reduce (1) employees' dissatisfaction and (2) perceived instrumentality of unions, thereby their motivation to join the union or keep union membership status.
- Supply side for unions
 - HRM would reduce the likelihood of being targeted by union organizers (Fiorito, 2001).

| HRM as Union Substitution

- Do employers really have an intention to substitute for unions? (Fiorito, 2001; Machin & Wood, 2005)
- Incentives to adopt HRM (Kochan & Katz, 1988)
 - (1) Enhance performance and lower turnover rate
 - (2) Avoid the union
 - (3) To avoid legal suits
- What if union density drops even though employers have the intentions of (1) & (3) only?

Theoretical Framework

- Focus on three sets of HR practices, instead of HR practices taken as a coherent “bundle” (Batt & Colvin, 2011; Shaw, Delery, Jenkins, & Gupta, 1998; Shaw, Dineen, Fang, & Vellella, 2009)
 - Potentially different effects on performance
 - Work organization, investment and inducement strategies, performance-enhancing expectations

Work Organization

- High involvement work organization (Batt & Colvin, 2011; Guthrie, 2001; Lawler, 1992)
 - Based on TQM and socio-technical systems
 - Discretion at work to use employees’ tacit knowledge to diagnose and solve operational problems
 - Employee discretion with self-directed team and group problem solving
 - Job rotation
- Disputes on high involvement work organization
 - Potentially harmful because of peer monitoring and enforcement of group norms, and high labor intensity (Barker, 1999; Mehri, 2005)
- Beg the empirical question

Investment and Inducement Strategies

- Long-term incentives based on internal labor market(ILM) theory(Batt & Colvin, 2011; Shaw et al., 2009; Tsui, Pearce, Porter, & Tripoli, 1997)
 - Higher pay and benefit level
 - Training
 - Recruit from within & career development program
 - Employment security
 - Procedural justice
- Employers provide a substitute for unions, which is likely to increase employees' satisfaction and reduce their perceived instrumentality of the union, thereby reducing the union membership rate.

Performance-Enhancing Expectations

- Short-term incentives designed to improve performance (Batt & Colvin, 2011; Shaw et al., 2009)
 - Electronic monitoring and performance appraisal
 - Pay for individual performance
- Short-term incentives are likely to increase employees' dissatisfaction due to competitions among employees, thereby increasing the union membership rate.
- How about performance pay based on group/firm performance?
 - Gain-sharing and profit-sharing program

Data

- The Korea Labor Institute's Workplace Panel Survey(WPS)
 - Biannual survey on HRM and IR from 2005 to 2013
- Sample
 - 2,017 union establishments
 - 83×4 years
 - 337×5 years
- Analysis
 - Panel fixed-effects model

Table 1. Variable Definitions

Variables	Definitions
Dependent variable	
Union membership rate	The percentage of permanent employees who join a union in the establishment.
Independent variables	
<i>Work organization</i>	A standardized and averaged index based on five items below:
Discretion of Team	An four-item index of whether a team has discretion over work methods, pace of work, hiring a team member, and training schedule; a 1–4 Likert-scale-type question with anchors “none” and “substantially”); standardized and averaged.
TQM	Whether the establishment adopts a TQM or any equivalent quality programs (1) or not (0); standardized.
Suggestion program	Whether the establishment adopts a suggestion program (1) or not (0); standardized.
Problem-solving group	The percentage of employees in off-line problem-solving; a 0 to 5 interval scale of with anchors “no problem-solving program (0)”, “equal or less than 20% (1)”, “equal or less than 40% (2)”, “equal or less than 60% (3)”, “equal or less than 80% (4)”, “equal or less than 100% (5)”; standardized.
Job rotation	The percentage of employees in job rotation; a 0 to 5 interval scale with anchors “no job rotation program (0)”, “equal or less than 20% (1)”, “equal or less than 40% (2)”, “equal or less than 60% (3)”, “equal or less than 80% (4)”, and “equal or less than 100% (5)”; standardized.
<i>Investments & inducements</i>	A standardized and averaged index based on six items below:
Relative market wage	The level of average annual pay relative to the level in the same industry; a 1–5 Likert-scale-type question with anchors “very low” to “very high”; standardized.
Employee benefits	A summation of the presence of eleven benefit programs (financial supports for residence, sports, etc., tuitions, child-cares, vacation, commute, counseling, health expenses, insurance, employee stock ownership program, and within-firm welfare fund); standardized.
Job security	Whether the establishment has no layoff policy and did lay off no employee for the past two years (1) or not (0); standardized.
Internal Labor Market	A two-item index of “Internal mobility” and “career development programs”; “Internal mobility” was measured by the presence of the establishment’s policy that gives a priority to an incumbent for a job vacancy (1) or not (0); “career development programs” was measured by the summation of the presence of four career development programs (mentoring, workshop, and employee succession, and an assessment center for career development); standardized and averaged.
Training programs	A summation of the presence of six training programs (on-site, off-site, remote learning through the internet, job-related learning group, a joint training program with suppliers and with a parent company) and three training support programs (fee reimbursement, time-off, flexible work schedule); standardized.
Communication programs	A summation of the presence of nine communication programs (a top manager holds a meeting with all employees, regular workplace meetings, and operates a hot-line to communicate directly with employees, information sharing through regular staff meetings, regular employee attitude surveys, regular newsletters, bulletins, regular emails, intranets); standardized.
<i>Performance-enhancing practices</i>	
Performance-enhancing for individuals	A two-item index of “performance evaluation” and “merit-pay program”; “performance evaluation” was measured by the presence of performance evaluation program at the establishment (1) or not (0); “merit-pay program” was measured by the presence of merit-pay program for all permanent employees at the establishment (1) or not (0); standardized and averaged.
Performance-enhancing for group/firm	Whether all permanent employees are covered by a group- or firm-level performance pay program (1) or not (0).
Control variables	
Establishment size	Number of permanent employees in the establishment.
Establishment age	Number of years since the establishment opened.
Market competitiveness	The degree to which the firm’s core product/service is competitive in the domestic market; a 1–5 Likert-scale-type question with anchors “very competitive” to “not very competitive”); reverse coded
Innovation as a core strategy	Whether the firm takes a product/service innovation as a core strategy, invest R&D to innovate product/service development and/or processes, and competitors try to imitate the innovation strategy (1) or not (0).

Professional management	Whether the top management team is composed of professional managers only (1) or not (0).
Management by foreign shareholders	Whether foreign investors are the largest shareholders and participate in the top management team or the board of director (1) or not (0).
Sell-off/Spin-off	Whether the firm sold off or spun off a (part of) business unit during the past 2 years.
Outsourced employees	The ratio of outsourced employees who work in-house but are legally employed by another company to permanent employees.
Female employees	The proportion of permanent employees who are women.
Older employees	The proportion of permanent employees who are equal or greater than 50 years old.
Younger employees	The proportion of permanent employees who are less than 30 years old.
Part-time employees	The proportion of part-time employees.
Production employees	The proportion of permanent employees who work for production.
Unskilled employees	The proportion of permanent employees who are unskilled.
Multi-unions	Whether more than two unions are organized in the establishment (1) or not (0).
Election competition	Whether more than two candidates competed for a union leader in the last election (1) or not (0).
FKTU	Whether the first union is affiliated with the federation of Korean Trade Unions (1) or not (0); a reference group is an independent union or a union that affiliates with the third national unions.
KCTU	Whether the first union is affiliated with the Korean confederation of Trade Unions (1) or not (0); a reference group is an independent union or a union that affiliates with the third national unions.
Union strategy	The first union's strategy toward the management; a 1–4 interval scale with anchors “tries to minimize the firm's management rights (1)”, “recognizes the firm's management rights but does not collaborate with the management against the employees' interests (2)”, “tries to protect the employees' interests by collaborating with the management (3)”, “tends to collaborate with the management regardless of the employees' interests (4)”; reverse coded.
Management attitude toward employees' joining the union	The management's attitude toward employees' joining the union; a 1–4 interval scale with anchors “tends to recommend (1)”, “does not recommend but ignore (2)”, “tends to covertly interfere with (3)”, and “explicitly interferes with (4)”; reverse coded.
L-M partnership	Whether a management recognizes the first union as a business partner (1) or not (0).

Table 2. Means and Standard Deviations of Variables by Year and in Aggregate

Variables	2005 (N=382)		2007 (N=420)		2009 (N=420)		2011 (N=420)		2013 (N=375)		2005-2013 (N=2,017)	
	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.
Dependent variable												
Union membership rate	62.65	24.56	60.26	25.15	60.59	25.19	60.47	25.27	58.74	26.29	60.54	25.29
Independent variable												
Work organization	0.17	0.58	0.08	0.59	-0.17	0.56	-0.01	0.59	-0.05	0.56	0.00	0.59
Discretion of Team	2.55	0.51	2.57	0.53	2.55	0.52	2.59	0.52	2.53	0.53	2.56	0.52
TQM	0.50	0.50	0.45	0.50	0.29	0.45	0.33	0.47	0.30	0.46	0.37	0.48
Suggestion program	0.78	0.41	0.73	0.44	0.54	0.50	0.64	0.48	0.62	0.49	0.66	0.47
Problem-solving group	1.84	1.87	1.35	1.73	1.14	1.56	1.51	1.86	1.57	1.80	1.47	1.78
Job rotation	1.30	1.79	1.33	1.77	0.73	1.38	1.07	1.53	1.00	1.55	1.08	1.62
<i>Investment & incentives</i>	0.11	0.57	0.07	0.55	-0.06	0.55	0.02	0.60	-0.07	0.58	0.01	0.57
Relative market wage	3.08	0.75	3.08	0.72	3.00	0.57	3.08	0.66	3.00	0.69	3.05	0.68
Employee benefits	5.84	2.63	5.87	2.71	4.72	2.71	4.88	2.87	4.69	2.93	5.20	2.82
Job security	0.18	0.39	0.21	0.41	0.20	0.40	0.22	0.42	0.24	0.43	0.21	0.41
Internal labor market	-0.02	0.75	-0.11	0.78	-0.00	0.79	-0.13	0.81	-0.00	0.83	-0.11	0.79
Internal mobility	0.39	0.49	0.45	0.50	0.45	0.50	0.39	0.49	0.38	0.49	0.41	0.49
Career development programs	0.52	0.76	0.55	0.80	0.54	0.78	1.03	1.22	0.98	1.22	0.72	1.00
Training programs	4.17	2.45	3.83	2.26	3.51	2.25	3.52	2.29	3.29	2.21	3.66	2.31
Communication programs	4.54	2.33	4.01	2.18	3.81	2.41	3.95	2.37	3.31	2.25	3.93	2.34
<i>Performance-enhancing for individual</i>	-0.15	0.49	-0.14	0.51	-0.32	0.53	0.26	0.95	0.24	0.98	-0.03	0.76
Performance evaluation program	0.66	0.47	0.67	0.47	0.51	0.50	0.65	0.48	0.61	0.49	0.62	0.49
Merit pay program	0.01	0.09	0.01	0.08	0.00	0.07	0.30	0.46	0.31	0.46	0.12	0.33
<i>Performance-enhancing for group/firm</i>	0.04	1.01	0.01	1.00	-0.24	0.89	-0.06	0.98	-0.02	0.99	-0.06	0.98
Group/Firm-level Performance pay program	0.37	0.48	0.35	0.48	0.24	0.42	0.32	0.47	0.34	0.47	0.32	0.47
Control variables												
Establishment size	677.53	1167.42	723.57	1332.19	703.81	1344.97	728.93	1355.45	658.06	983.62	699.67	1250.78
Establishment age	36.82	18.98	38.29	18.79	40.29	18.79	42.29	18.79	43.67	17.99	40.26	18.82
Market competitiveness	3.33	1.33	3.29	1.29	2.91	1.17	3.11	1.22	3.13	1.25	3.15	1.26
Innovation as a core strategy	0.55	0.50	0.57	0.50	0.57	0.50	0.48	0.50	0.49	0.50	0.53	0.50
Professional management	0.17	0.38	0.14	0.35	0.11	0.31	0.08	0.27	0.12	0.33	0.12	0.33
Management by foreign shareholders	0.09	0.29	0.08	0.27	0.07	0.26	0.06	0.23	0.05	0.21	0.07	0.25
Sell-off/Spin-off	0.00	0.00	0.05	0.22	0.03	0.16	0.01	0.10	0.02	0.13	0.02	0.14
Outsourced employees	0.08	0.12	0.07	0.13	0.07	0.12	0.08	0.13	0.08	0.13	0.08	0.13
Female employees	23.17	23.03	24.06	28.61	23.44	23.27	23.69	23.44	22.95	23.11	23.48	24.42
Older employees	14.63	13.73	16.22	15.08	19.34	17.60	23.69	20.57	27.40	21.98	20.20	18.61
Younger employees	19.84	18.02	17.62	17.94	15.89	16.75	15.63	16.83	14.69	15.90	16.72	17.19

Part-time employees	1.49	6.49	1.76	7.97	1.46	6.60	2.00	8.20	1.24	5.54	1.60	7.07
Production employees	32.28	36.33	36.46	36.43	38.88	36.80	33.80	35.95	34.99	36.62	35.35	36.46
Unskilled employees	6.82	17.14	7.00	17.89	6.22	17.29	6.59	16.68	7.62	18.09	6.83	17.40
Multi-unions	0.00	0.00	0.05	0.21	0.02	0.15	0.10	0.30	0.14	0.34	0.06	0.24
Election competition	0.55	0.50	0.56	0.50	0.59	0.49	0.56	0.50	0.59	0.49	0.57	0.50
FKTU	0.59	0.49	0.57	0.50	0.48	0.50	0.58	0.49	0.57	0.50	0.55	0.50
KCTU	0.36	0.48	0.37	0.48	0.41	0.49	0.29	0.46	0.29	0.45	0.35	0.48
Union strategy	2.76	0.54	2.69	0.56	2.72	0.57	2.74	0.54	2.77	0.53	2.74	0.55
Management attitude toward employees' joining the union	3.19	0.59	3.26	0.57	3.14	0.49	3.21	0.63	3.29	0.56	3.22	0.57
L-M partnership	0.62	0.49	0.58	0.49	0.56	0.50	0.65	0.48	0.58	0.49	0.60	0.49

Source: The Korean Workplace Panel Survey, 2005-2013.

Note: FKTU denotes for the Federation of Korean Trade Unions; KCTU for the Korean Confederation of Trade Unions.

Table 3. Bivariate Correlations for Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1. Union membership rate																									
2. Establishment size	-0.143																								
3. Establishment age	-0.001	0.222																							
4. Market competitiveness	-0.018	0.038	0.017																						
5. Innovation as a core strategy	-0.072	0.176	-0.003	0.066																					
6. Professional management	-0.049	0.174	0.036	0.106	0.091																				
7. Management by foreign shareholders	0.037	0.103	-0.061	0.073	0.071	0.119																			
8. Sell-off/Spin-off	-0.007	0.070	0.053	0.029	0.042	0.018	0.000																		
9. Contract worker ratio	-0.352	0.066	0.010	0.009	-0.016	0.014	-0.090	-0.038																	
10. Female workers	-0.367	0.125	-0.043	0.005	0.076	0.032	-0.006	-0.043	0.246																
11. Older employees	0.276	-0.201	0.162	-0.049	-0.189	-0.140	-0.112	-0.032	-0.085	-0.304															
12. Younger employees	-0.267	0.165	-0.079	0.010	0.115	0.056	0.067	0.001	0.092	0.478	-0.416														
13. Part-time employees	-0.249	0.026	-0.094	0.014	0.021	0.006	-0.019	-0.019	0.090	0.316	-0.088	0.125													
14. Production employees	0.325	-0.035	0.083	-0.023	0.027	-0.022	0.131	0.067	-0.323	-0.351	0.148	-0.151	-0.188												
15. Unskilled employees	0.010	-0.073	-0.072	-0.032	-0.045	-0.039	-0.029	-0.022	0.034	0.105	0.058	-0.031	0.123	-0.233											
16. Multi-unions	0.036	0.068	-0.008	-0.014	-0.098	-0.050	-0.028	-0.008	0.054	-0.035	0.124	-0.053	0.003	-0.068	0.014										
17. Election competition	0.225	0.076	0.026	0.016	0.002	0.011	0.062	0.031	-0.075	-0.187	0.152	-0.137	-0.034	0.094	0.001	0.017									
18. FKTU	0.302	-0.112	0.084	0.013	-0.037	-0.017	0.070	0.008	-0.174	-0.172	0.161	-0.110	-0.029	0.286	0.058	0.029	0.040								
19. KCTU	-0.258	0.138	-0.053	0.009	0.045	0.024	-0.053	0.001	0.168	0.150	-0.160	0.103	0.024	-0.247	-0.059	-0.074	-0.031	-0.810							
20. Union strategy	0.069	-0.116	0.015	0.019	0.023	-0.021	-0.062	-0.017	0.014	-0.030	0.053	-0.030	-0.033	0.015	0.024	-0.042	-0.028	0.130	-0.172						
21. Management attitude toward employees' joining the union	0.312	-0.052	0.037	-0.007	-0.035	-0.037	0.003	0.010	-0.092	-0.157	0.155	-0.126	-0.056	0.122	0.037	0.006	0.064	0.246	-0.250	0.182					
22. L-M partnership	0.150	-0.025	0.001	0.035	0.028	0.017	-0.017	0.002	0.004	-0.033	0.060	-0.032	-0.038	0.051	0.001	-0.032	0.028	0.062	-0.073	0.351	0.223				
23. Work Organization	-0.060	0.204	-0.073	0.057	0.249	0.149	0.086	0.028	-0.006	0.087	-0.259	0.143	0.019	0.043	-0.062	-0.018	-0.053	-0.018	0.000	0.012	-0.022	0.082			
24. Investment & incentives	-0.076	0.387	-0.040	0.038	0.311	0.203	0.131	0.054	0.026	0.102	-0.303	0.134	0.031	-0.026	-0.054	-0.009	0.021	-0.121	0.098	-0.034	-0.011	0.128	0.528		
25. Performance-enhancing for individuals	-0.100	0.226	-0.014	0.050	0.143	0.110	0.063	0.015	0.089	0.115	-0.284	0.146	0.072	-0.059	-0.025	-0.020	-0.009	-0.073	0.051	0.018	0.005	0.060	0.341	0.374	
26. Performance-enhancing for group/firm	-0.075	0.156	-0.078	-0.003	0.120	0.091	0.116	0.023	0.078	0.053	-0.230	0.086	0.058	-0.045	-0.009	0.038	-0.003	0.008	-0.033	0.028	0.025	0.047	0.327	0.365	0.290

Source: The Korean Workplace Panel Survey, 2005-2013.

Note: FKTU denotes for the Federation of Korean Trade Unions; KCTU for the Korean Confederation of Trade Unions.

Table 4. The Fixed-Effects Model Results of Work Organization, Investments and Inducements, and Performance-Enhancing Practices on Union membership rate, 2005-2013

	Model 1	Model 2	Model 3	Model 4	Model 5
ln(Establishment size)		-7.014*** (1.708)	-6.245*** (1.625)	-6.443*** (1.619)	-6.313*** (1.612)
ln(Establishment age)		2.161 (6.884)	3.028 (6.902)	2.344 (7.070)	2.384 (6.978)
Market competitiveness		0.258 (0.287)	0.239 (0.284)	0.151 (0.283)	0.128 (0.282)
Innovation as a core strategy		-1.002 (0.694)	-1.028 (0.683)	-1.079 (0.693)	-0.935 (0.691)
Professional management		-0.019 (1.137)	0.060 (1.104)	0.328 (1.102)	0.232 (1.099)
Management by foreign shareholders		-0.018 (1.480)	-0.344 (1.502)	-0.279 (1.534)	-0.163 (1.556)
Sell-off/Spin-off		-2.206 (2.129)	-2.151 (2.087)	-1.896 (2.079)	-1.935 (2.030)
Contract worker ratio		-12.313* (5.483)	-15.945** (6.021)	-16.047** (6.044)	-15.810** (5.963)
Female workers			0.056 (0.046)	0.068 (0.045)	0.064 (0.044)
Older employees			0.088** (0.029)	0.076* (0.030)	0.075* (0.030)
Younger employees			0.002 (0.027)	-0.004 (0.028)	-0.008 (0.028)
Part-time employees			-0.328*** (0.065)	-0.329*** (0.066)	-0.323*** (0.066)
Production employees			0.006 (0.013)	0.009 (0.014)	0.010 (0.014)
Unskilled employees			-0.005 (0.024)	-0.007 (0.024)	-0.004 (0.024)
Multi-unions				3.434* (1.732)	3.539* (1.756)
Election competition				-0.189 (0.677)	-0.187 (0.672)
FKTU				2.941 (1.940)	2.651 (1.917)
KCTU				2.081 (1.707)	1.939 (1.707)
Union strategy				0.991 (0.678)	0.929 (0.668)
Management attitude toward employees' joining the union				1.604** (0.580)	1.695** (0.580)
L-M partnership				1.372* (0.666)	1.553* (0.674)
Work organization					0.862 (0.632)
Investments & inducements					-1.618* (0.761)
Performance enhancing for individuals					0.547 (0.376)
Performance enhancing for group/firm					-0.994** (0.334)
_cons	62.306*** (0.547)	96.578*** (24.571)	87.139*** (24.510)	79.850** (25.516)	78.994** (25.256)
Year-Fixed Effects	Yes	Yes	Yes	Yes	Yes
log-likelihood	-7524.93	-7472.80	-7448.26	-7428.64	-7419.40

Within R-squared	0.011	0.061	0.083	0.101	0.109
F-value	3.654	4.732	4.915	4.855	4.70
Observation	2,017	2,017	2,017	2,017	2,017
Group	420	420	420	420	420

Source: The Korean Workplace Panel Survey, 2005-2013.

Note: + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; FKTU denotes for the Federation of Korean Trade Unions; KCTU for the Korean Confederation of Trade Unions.

Table 5. The Fixed-Effects Model Results of Individual Human Resource Practices on Union membership rate, 2005-2013

	Model 1
Work organization	
Discretion of Team	0.327 (0.362)
TQM	0.741+ (0.429)
Suggestion program	0.187 (0.372)
Problem-solving group	-0.595+ (0.317)
Job rotation	0.419 (0.354)
Investments & inducements	
Relative market wage	-0.534 (0.335)
Employee benefits	0.018 (0.436)
Job security	-0.571* (0.286)
Internal labor market	-0.326 (0.488)
Training programs	-0.025 (0.443)
Communication programs	-0.196 (0.396)
Performance-enhancing for individuals	
Performance evaluation program	0.000 (0.357)
Merit-pay program	0.405* (0.187)
Performance-enhancing for group/firm	
Group/Firm-level Performance pay program	-0.997** (0.337)
_cons	77.718** (25.356)
Other control variables	Yes
Year-Fixed Effects	Yes
log-likelihood	-7412.52
Within R-squared	0.115
F-value	3.89
Observation	2017
Group	420

Source: The Korean Workplace Panel Survey, 2005-2013.

Note: + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; FKTU denotes for the Federation of Korean Trade Unions; KCTU for the Korean Confederation of Trade Unions.

Discussion

- Our results were consistent across
 - across the different source of union membership rate (one from managements and the other from labor unions)
 - with the addition of lagged variables
- Our results suggest that a middle approach that takes into account the nature of HRM practices, instead of a holistic approach to HRM as union substitution, may not be fruitful in explaining the change in union membership rate.

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Appendix 1. Fixed Effects Model Results of Work Organization, Investments and Inducements, and Performance-Enhancing Practices on Union Membership Rate (Robustness Check Using an Alternative Measure of Union Membership Rate)

	Model 5	Model 6
Work organization	1.198+ (0.633)	
Investments and inducements	-1.839* (0.783)	
Performance enhancing for individuals	0.350 (0.391)	
Performance enhancing for group/firm	-0.742* (0.341)	
Work organization		
Discretion of Team		0.432 (0.360)
TQM		0.675 (0.425)
Suggestion program		0.220 (0.366)
Problem-solving group		-0.483 (0.319)
Job rotation		0.489 (0.344)
Investments & inducements		
Relative market wage		-0.603+ (0.338)
Employee benefits		0.085 (0.439)
Job security		-0.678* (0.291)
Internal labor market		-0.404 (0.489)
Training programs		-0.118 (0.452)
Communication programs		-0.163 (0.401)
Performance enhancing for individuals		
Performance evaluation program		0.025 (0.365)
Merit-pay program		0.248 (0.191)
Performance enhancing for group/firm		
Group/Firm-level Performance pay program		-0.766* (0.345)
_cons	84.690*** (25.031)	82.795** (25.180)
Other control variables	Yes	Yes
Year-Fixed Effects	Yes	Yes
log-likelihood	-7431.80	-7425.28
Within R-squared	0.108	0.114
F-value	4.85	4.014
Observation	2,017	2,017

Group	420	420
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Source: The Korean Workplace Panel Survey, 2005-2013.

Note: + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; FKTU denotes for the Federation of Korean Trade Unions; KCTU for the Korean Confederation of Trade Unions.

Appendix 2. Fixed Effects Model Results of Work Organization, Investments and Inducements, and Performance-Enhancing Practices on Union membership rate with Lagged Variables

	Model 1	Model 2	Model 3	Model 4
Work organization	0.836 (0.845)		1.259 (0.816)	
Work organization _{t-1}	1.472+ (0.857)		1.142 (0.819)	
Investments & inducements	-1.269 (0.851)		-1.605+ (0.867)	
Investments & inducements _{t-1}	-0.432 (0.980)		-0.188 (0.966)	
Performance enhancing for individuals	0.846+ (0.471)		0.639 (0.457)	
Performance enhancing for individuals _{t-1}	0.633 (0.530)		0.592 (0.489)	
Performance enhancing for group/firm	-0.993* (0.412)		-0.700+ (0.417)	
Performance enhancing for group/firm _{t-1}	-0.822+ (0.429)		-0.903* (0.451)	
Work organization				
Discretion of Team		0.784+ (0.434)		0.937* (0.425)
Discretion of Team _{t-1}		0.707+ (0.373)		0.413 (0.369)
TQM		0.036 (0.520)		0.125 (0.510)
TQM _{t-1}		0.335 (0.475)		0.396 (0.463)
Suggestion program		-0.165 (0.460)		-0.231 (0.466)
Suggestion program _{t-1}		0.691 (0.480)		0.396 (0.501)
Problem-solving group		-0.461 (0.388)		-0.202 (0.395)
Problem-solving group _{t-1}		-0.701+ (0.388)		-0.483 (0.384)
Job rotation		0.918* (0.448)		0.896* (0.416)
Job rotation _{t-1}		0.770+ (0.451)		0.812+ (0.429)
Investments & inducements				
Relative market wage		-0.426 (0.393)		-0.725+ (0.404)
Relative market wage _{t-1}		0.045 (0.445)		-0.048 (0.443)
Employee benefits		0.472 (0.543)		0.349 (0.544)
Employee benefits _{t-1}		0.705 (0.590)		0.601 (0.591)
Job security		-0.530 (0.350)		-0.571 (0.352)
Job security _{t-1}		-0.417 (0.376)		-0.322 (0.388)
Internal labor market		-0.385 (0.614)		-0.654 (0.610)

Internal labor market _{t-1}		-0.163 (0.499)		-0.403 (0.500)
Training programs		-0.342 (0.527)		-0.31 (0.524)
Training programs _{t-1}		0.013 (0.539)		0.394 (0.516)
Communication programs		0.185 (0.490)		0.276 (0.493)
Communication programs _{t-1}		-0.488 (0.497)		-0.353 (0.523)
Performance enhancing for individuals				
Performance evaluation program		0.113 (0.411)		0.019 (0.416)
Performance evaluation program _{t-1}		0.492 (0.526)		-0.049 (0.534)
Merit-pay program		0.609* (0.262)		0.531* (0.246)
Merit-pay program _{t-1}		0.136 (0.321)		0.357 (0.285)
Performance enhancing for group/firm				
Group-/Firm-level Performance pay program		-0.974* (0.422)		-0.679 (0.425)
Group-/Firm-level Performance pay program _{t-1}		-0.899* (0.448)		-0.896+ (0.469)
_cons	109.157** (39.312)	108.864** (40.206)	119.548** (39.160)	122.079** (40.229)
Other control variables	Yes	Yes	Yes	Yes
Year-Fixed Effects	Yes	Yes	Yes	Yes
log-likelihood	-5816.04	-5799.34	-5824.13	-5809.54
Within R-squared	0.100	0.118	0.104	0.120
F-value	2.914	2.153	3.071	2.345
Observation	1,597	1,597	1,597	1,597
Group	420	420	420	420

Source: The Korean Workplace Panel Survey, 2005-2013.

Note: + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; FKTU denotes for the Federation of Korean Trade Unions; KCTU for the Korean Confederation of Trade Unions.