THE IMPACT OF THE FRAGMENTATION OF BARGAINING INSTITUTIONS ON STRIKE ACTIVITY IN SOUTH KOREA

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Academic research and policy discussions have noted a tendency toward greater decentralization in the structure of collective bargaining in many countries in recent years. Previously unexamined is whether the structure of bargaining and union structure or changes in those structures affect strike frequency. This paper argues that more fragmented bargaining and union structures affect the frequency of strikes. Increased fragmentation in bargaining and union structures can make it more difficult for labor and management to understand each others' interests and thereby increase the likelihood of miscalculation in collective bargaining. Data from Korea is used both to develop novel measures of bargaining and union structure (and the degree of fragmentation in those structures) and strike frequency. The data and statistical analysis provide substantial evidence of an association between the degree of concentration in national-level unions and strike activity. In particular, regression analysis indicates that the greater is union monopoly (concentration) at the national level, the lower is industrial conflict.

Key Words: *Collective Bargaining, Bargaining Structure, Concentration, Strike*

INTRODUCTION

Academic research and policy discussions have noted a tendency toward greater decentralization in the structure of collective bargaining in many countries in recent years (Katz, 1983; Katz and Darbishire, 2002). There also has been discussion of the extent to which the structure of bargaining influences inflation and macroeconomic performance (Calmfors and Driffill, 1988; Golden, 1993; Golden, Wallerstein and Lange, 1999). Previously unexamined is whether the structures of bargaining and union, or changes in those structures, affect strike frequency.

This paper argues that more fragmented bargaining and union structures affect the frequency of strikes. Increased fragmentation in bargaining and union structures can make it more difficult for labor and management to understand each others' interests and thereby increase the likelihood of miscalculation in collective bargaining. Following

Hicks' classic model of strikes, increased miscalculation will lead to greater strike frequency (Hicks, 1932).

We use data from Korea both to develop novel measures of bargaining and union structure (and the degree of fragmentation in those structures) and strike frequency. Over the past 25 years Korea has experienced substantial shifts in the structure of collective bargaining and the structure of union representation, and there have been periods of heated union militancy. Korea thereby provides a convenient "natural experiment" that can be used to statistically test the relationship between bargaining and union structure and strike frequency.

AN OVERVIEW OF THE STRUCTURE OF COLLECTIVE BARGAINING AND UNION FRAGMENTATION IN KOREA

Compared to other countries, the structure of collective bargaining in Korea is relatively decentralized, with almost all bargaining occurring at the company level. In Korea, only one union and one employer can conclude a collective agreement on the issues of industrial relations. Moreover, for many years the military government (the Chun Doo Hwan regime) prohibited third party (i.e., union) intervention in collective bargaining.

Union structure also is highly decentralized in Korea as enterprise unions represent most blue-collar employees in a single firm, regardless of occupation or job, and sometimes these unions include white-collar workers when firms include professional workers, such as journalists, researchers, or hospital employees.

The enterprise unions are commonly associated with industry-level union federations, which, in turn, are affiliated with national confederations (FKTU or KCTU). Employers commonly belong to counterpart federations, the employer federations (*Kyung-Chong*). Both union and employer federations provide advice to their members and engage in political lobbying, but do not become directly involved in enterprise-level collective bargaining. In most collective bargaining, pay agreements (*imhyop*) are set in annual negotiations that occur between a firm and the enterprise union, and other issues (*danhyop*) are established in every other year agreements.

Although industrial or general unions are rare in Korea, industry-level collective bargaining started to occur in several sectors after the 1997 Asian financial crisis. Those sectors include the banking sector (the Korean Financial Industry Union), hospital workers (the Korean Health

TABLE 1. THE STRUCTURE OF KCTU UNION REPRESENTATION (2004 & 2005)

Organization	Number of Unions		Union Members		Percentage of Membership (%)	
	2004	2005	2004	2005	2004	2005
Enterprise Union	625	621	315,536	345,568	50.9	55.1
Industry-level Union	35	31	293,347	282,116	47.4	43.2
Local Union	84	90	10,521	10,499	1.7	1.7
Total	744	742	619,204	627,684	100.0	100.0

Source: KCTU official homepage (http://www.nodong.org/)

and Medical Workers Union) and metal workers (the Korean Metal Workers Union). Some observers claim that there is a tendency toward an upward shift in the formal structure of bargaining and a consequent increase in the frequency of industry-level bargaining (Lee and Lee, 2003). Yet, Table 1 reports figures on the structure of KCTU-affiliated unions and shows the predominance of enterprise unions.

Although centralized negotiations have been reported in several industry-level bargaining in recent years, our reading of the evidence suggests that there is very little evidence of the emergence of stable industry-level bargaining. In assessing changes in the structure of collective bargaining, it is important to keep in mind that deunionization represents an extreme form (perhaps the ultimate form) of bargaining structure decentralization. As unionization declines, fewer workers are covered by any sort of labor contract. Unorganized employees have their employment conditions determined either exclusively by employers or through individual (formal or informal) bargains in the market.

Over the several decades in the Figure 1, union density declined substantially after peaking in 1989. Although union density increased slightly after the economic crisis in 1997, this mostly reflected "legalization" of the previously illegal unions. (Kim, 2006). As a result, Korean developments overall are consistent with the movement toward greater decentralization in the structure of collective bargaining found in many countries.

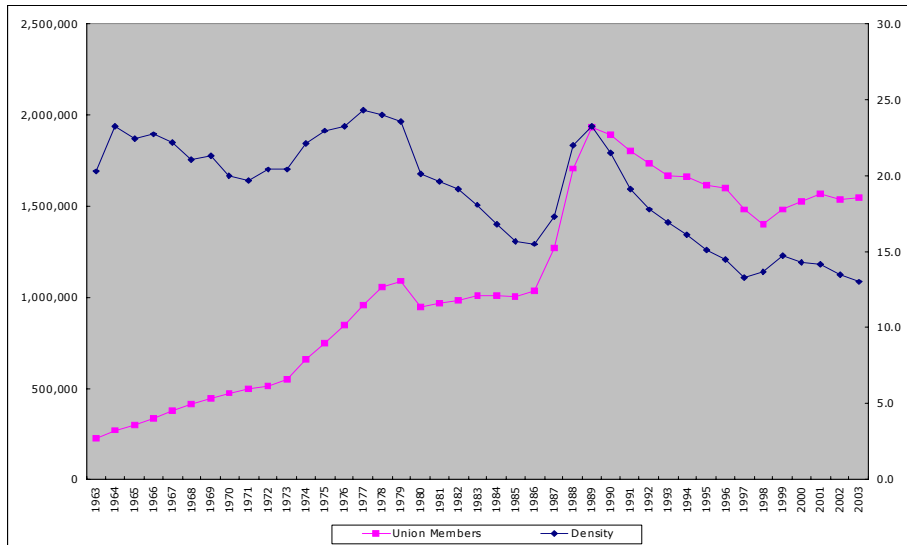Another key aspect of union structure is the degree of union

FIGURE 1. TIME SERIES OF UNION MEMBERSHIP AND UNION DENSITY

concentration, that is, the monopoly structure of workers' representation. Union concentration indicates the degree of organizational cohesion.

ORGANIZATIONAL FRAGMENTATION AND COORDINATION PROBLEM

within the labor movement as it affects the extent to which unions can coordinate intra- or inter-organizational conflicts. Union concentration indicates the ability of unions, especially national confederation or industrial unions, to dominate decision making between or within union organizations. In principle, the smaller the number of actors is, the easier it is to prevent inter-or intra-organizational conflicts. It is expected that the greater the degree of intra- or inter-organizational conflicts within unions is, the more likely in turn is union-management conflict.

To measure the degree of union concentration, we assess both the number of national and industrial federations. Union concentration is measured by both the number of union federations (C1 & C2 in Table 2) and the membership of these federations. Membership is assessed both in terms of the absolute value of union membership (C3 & C4 in Table 2) and the relative importance (C3-1 and C4-1 in Table 2) of the we measure union concentration by (1) the number of confederations

TABLE 2. UNION CONCENTRATION INDEX

Year	Unions	Density	C1	C2	Membership	C3	C3-1	C4	C4-1	Union size
1970	3500	20.0	1	17	473,259	473,259.0	1.0	27,838.8	0.059	135.2
1971	3525	19.7	1	17	497,221	497,221.0	1.0	29,248.3	0.059	141.1
1972	3409	20.4	1	17	515,292	515,292.0	1.0	30,311.3	0.059	151.2
1973	3286	20.4	1	17	548,054	548,054.0	1.0	32,238.5	0.059	166.8
1974	3802	22.1	1	17	655,785	655,785.0	1.0	38,575.6	0.059	172.5
1975	4091	23.0	1	17	750,235	750,235.0	1.0	44,131.5	0.059	183.4
1976	4389	23.3	1	17	845,630	845,630.0	1.0	49,742.9	0.059	192.7
1977	4598	24.3	1	17	954,727	954,727.0	1.0	56,160.4	0.059	207.6
1978	4875	24.0	1	17	1,054,608	1,054,608.0	1.0	62,035.8	0.059	216.3
1979	4965	23.6	1	17	1,088,061	1,088,061.0	1.0	64,003.6	0.059	219.1
1980	2635	20.1	1	16	948,134	948,134.0	1.0	59,258.4	0.063	359.8
1981	2158	19.6	1	16	966,738	966,738.0	1.0	60,421.1	0.063	448.0
1982	2208	19.1	1	16	984,136	984,136.0	1.0	61,508.5	0.063	445.7
1983	2255	18.1	1	16	1,009,881	1,009,881.0	1.0	63,117.6	0.063	447.8
1984	2382	16.8	1	16	1,010,522	1,010,522.0	1.0	63,157.6	0.063	424.2
1985	2551	15.7	1	16	1,004,398	1,004,398.0	1.0	62,774.9	0.063	393.7
1986	2675	15.5	1	16	1,035,890	1,035,890.0	1.0	64,743.1	0.063	387.2
1987	4103	17.3	1	16	1,267,457	1,267,457.0	1.0	79,216.1	0.063	308.9
1988	6164	22.0	1	21	1,707,456	1,707,456.0	1.0	81,307.4	0.048	277.0
1989	7883	23.3	1	21	1,932,415	1,932,415.0	1.0	92,019.8	0.048	245.1
1990	7698	21.5	1	21	1,886,884	1,886,884.0	1.0	89,851.6	0.048	245.1
1991	7656	19.1	1	21	1,803,408	1,803,408.0	1.0	85,876.6	0.048	235.6
1992	7527	17.8	1	21	1,734,598	1,734,598.0	1.0	82,599.9	0.048	230.5
1993	7147	16.9	1	26	1,667,373	1,667,373.0	1.0	64,129.7	0.038	233.3
1994	7025	16.1	1	26	1,659,011	1,659,011.0	1.0	63,808.1	0.038	236.2
1995	6606	15.1	1	26	1,614,800	1,614,800.0	1.0	62,107.7	0.038	244.4
1996	6424	14.5	1	26	1,598,558	1,598,558.0	1.0	61,483.0	0.038	248.8
1997	5733	13.3	1	40	1,484,194	1,484,194.0	1.0	37,104.9	0.025	258.9
1998	5560	13.7	1	42	1,401,940	1,401,940.0	1.0	33,379.5	0.024	252.1
1999	5637	14.7	2	43	1,480,666	740,333.0	0.5	34,434.1	0.023	262.7
2000	5698	14.3	2	44	1,526,995	763,497.5	0.5	34,704.4	0.023	268.0
2001	6150	14.2	2	45	1,568,723	784,361.5	0.5	34,860.5	0.022	255.1
2002	6506	13.5	2	41	1,538,499	769,249.5	0.5	37,524.4	0.024	236.5
2003	6257	13.0	2	43	1,549,949	774,974.5	0.5	36,045.3	0.023	247.7

C1: N of Confederations, C2: N of Industrial Federations, C3: Size of C1, C3-1: C3/Membership, C4: Size of C2, C4-1: C4/Membership

national and industrial federations in total union membership.[1] That is, and industrial federations (C1/C2) and (2) the distribution of union members among the various union organizations (C3, C3-1/C4, C4-1).

As regards *national confederation concentration* (C1) in Korea, only one union confederation existed as of the end of the 1980s. The confederation, the Federation of Korean Trade Union (FKTU), organized every legal enterprise union under its umbrella, even though it was dependent on support from the military government. In addition, the FKTU was able to monopolize union membership because the labor law revisions promoted by the military government prohibited alternative unions (the ban on multi-unionism). In short, the concentration at the national confederation level in Korea had been preserved until the late 1980s by the legal regulations imposed by the authoritarian government.

During this period, the *concentration by membership size of the union confederation* (C3) had also been increasing as union membership expanded. The relative size of confederation union membership (C3-1) remained at 1.0, as total union membership was equal to the one confederation's membership (i.e., membership monopoly).

With regards to the degree of *concentration measured by the number of industrial federations* (C2), it also had been stable, ranging between 16 and 17 (Table 2), before the late 1980s. The membership of major industrial federations steadily increased until the end of the late 1980s, and the degree of *concentration as measured by federation membership* (C4) also was steadily increasing. In addition, the relative size of union membership enrolled in any of the major industrial federations (C4-1) was well balanced in the range of 0.059 and 0.063 before the 1987 struggle and suing revitalization of the Korean labor movement.

In our statistical analysis, union concentration in Korea is divided into two periods, before and after the late 1980s wave of union militancy (Table 2). The data show that in the second period, the union confederation and industry concentration scores declined.

The Korean labor movement was divided along political and ideological lines into two confederations in 1997, that is, the FKTU and the KCTU. This split involved the mobilization of democratic unionism led by a new independent union organization (KCTU). As a result, the share of union members enrolled in each confederation (C1 and C2) declined. The emergence of two rival confederations also led union membership to disperse into new industrial federations (C3 & C4). In

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[1] C3-1 = C3 / Total Union Membership, C4-1 = C4 / Total Union Membership

TABLE 3. REGRESSION ANALYSIS OF THE IMPACT OF UNION CONCENTRATION (C1/C2) ON STRIKES

	M-1	M-1A	M-1B	M-1C	M-1D	M-1E
Predictor	Strikes					
Lagged 1-year	0.13 **	0.14 ***	0.15 ***	0.14 **	0.12 **	0.16 ***
Year dummy 87	0.85 ***	0.86 ***	0.86 ***	0.86 ***	0.86 ***	0.86 ***
Year dummy 88	0.30 ***	0.29 ***	0.29 ***	0.29 ***	0.30 ***	0.28 ***
Year dummy 89	0.30 ***	0.29 ***	0.29 ***	0.29 ***	0.29 ***	0.30 ***
Confederations(C1)	0.29 ***	0.06 ***				
Ind. Federations(C2)	-0.08		0.03 *			
N of Unions	-0.02			0.01		
Union Members	0.04				0.03	-0.04 **
Union Density	-0.04					
Adjusted R-square	0.990	0.990	0.987	0.986	0.987	0.988
N	34	34	34	34	34	34

|	M-1A-1	M-1A-2	M-1A-3	M-1B-1	M-1B-2	M-1B-3
Predictor	Strikes					
Lagged 1-year	0.14 **	0.14 **	0.16 ***	0.15 **	0.15 **	0.17 ***
Year dummy 87	0.86 ***	0.86 ***	0.86 ***	0.86 ***	0.86 ***	0.86 ***
Year dummy 88	0.29 ***	0.29 ***	0.28 ***	0.28 ***	0.28 ***	0.27 ***
Year dummy 89	0.30 ***	0.30 ***	0.29 ***	0.29 ***	0.29 ***	0.29 ***
Confederations(C1)	0.05 **	0.05 ***	0.06 ***			
Ind. Federations(C2)				0.03	0.04	0.05 *
N of Unions	-0.06	-0.06 *	-0.01	-0.05	-0.06	-0.02
Union Members	0.06	0.06		0.05	0.06	
Union Density	0.00			-0.01		
Adjusted R-square	0.990	0.990	0.989	0.987	0.988	0.987
N	34	34	34	34	34	34

Note: *. $P < 0.10$, **. $P < 0.05$, ***. $P < 0.01$
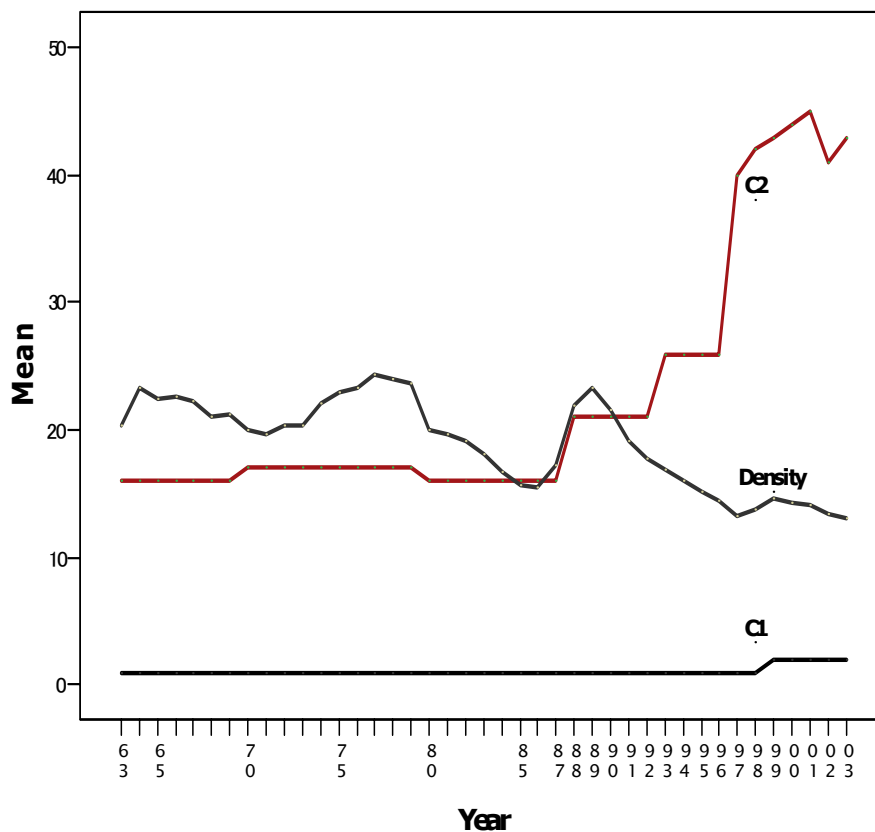
FIGURE 2. UNION CONCENTRATION INDEX (C1 & C2) AND UNION DENSITY RATE

addition, union concentration by membership size also declined in both absolute value (C3/C4) and relative value (C3-1/C4-1) terms.

Figure 2 traces union density and union concentration (C4 in particular). While union density has steadily decreased, thenumber of industrial federations has continued to increase since 1989 because new types of workers have been organized.

The decrease in union concentration that occurred contributed to increasing industrial conflicts because competition for ideological identity (*seon-myong-sung*) between union federations at the confederation- and industry-levels increased the possibility of industrial conflicts. The tendency for union competition to spur industrial conflicts was well demonstrated when various disputes directly followed competitive maneuvers between CTU and FKTU over various policy and industrial

relations issues. For example, from their formation the KCTU tried to persuade the government to legalize multiple unionism at both national and firm levels, whereas the FKTU strongly opposed that for fear that the reform would wipe out their monopolistic advantage (Song, 1999). In addition, after the financial crisis, "both federations participated in the Tripartite Commission at the beginning, but the KCTU eventually withdrew from the commission as its members strongly denounced the leadership's decision to reach an agreement that made it easier to lay off workers." (Lee and Lee, 2003) These policy differences contributed to labor disputes. In the early 1990s the KCTU supported strikes to get labor law reforms that would legitimize multiple unionism, and then in the late 1990s the KCTU supported strikes that opposed the labor law reforms that made lay-offs easier.

STATISTICAL ANALYSIS OF THE IMPACT OF THE FRAGMENTATION IN BARGAINING AND UNION STRUCTURES ON STRIKE FREQUENCY

In our statistical model, we use a simple linear interaction model to evaluate the impact of bargaining and union structure on strike frequency by controlling for the influence of various other factors on strike frequency. We estimate $S = a + \sum \beta_i x_i + e$ where S is strike activity and x measures bargaining and union fragmentation.

The data are from archival resources for the period from 1963 through 2003. The data are annual measures of union concentration and membership in each year and other environmental variables that might affect strike frequency. The dependent variable is the number of industrial disputes. Dummy variables (*Year*) are included in the model to control for the idiosyncratic events that occurred in 1987, 1988 and 1989, and a lagged (by one year) measure of the dependent variable is also incorporated into the model to control for *time* effects. The results of the least square analysis are reported in Tables 3 and 4.

The first model (*M-1* family: M-1 to M-1B-3) was estimated with the following independent variables: the number of union confederations (i.e., union concentration at the national level; C1), the number of industrial federations (i.e., union concentration at the industrial level; C2), the number of enterprise unions, union membership, time dummy variables, and a lagged dependent variable. The second model (*M-2* family: M-2-1 to M-2D-2) was estimated without C1 and C2 in the *M-1* family of models and with the membership size of union confederations (C3) as well as the membership size of industrial union federations (C4)

TABLE 4. REGRESSION ANALYSIS OF THE IMPACT OF UNION CONCENTRATION (C3/C4, C3-1/C4-1) ON STRIKES

	M-2-1	M-2A-1	M-2A-2	M-2B-1	M-2B-2
Predictor	Strikes				
Lagged 1-year	0.13 **	0.19 ***	0.16 ***	0.15 **	0.14 **
Year dummy 87	0.84 ***	0.86 ***	0.86 ***	0.86 ***	0.86 ***
Year dummy 88	0.31 ***	0.27 ***	0.28 ***	0.29 ***	0.29 ***
Year dummy 89	0.30 ***	0.30 ***	0.29 ***	0.30 ***	0.29 ***
Size of Confederations (C3)	-0.17 ***	-0.13 ***	-0.01		
Size of Ind. Federations (C4)	0.11 **			0.01	0.01
N of Unions	0.02				
Union Members	0.05				
Union Density	-0.06	-0.05 **		-0.04 **	
Adjusted R-square	0.991	0.998	0.986	0.988	0.986
N	34	34	34	34	34

	M-2-2	M-2C-1	M-2C-2	M-2D-1	M-2D-2
Predictor	Strikes				
Lagged 1-year	0.13 **	0.15 ***	0.14 ***	0.16 **	0.14 **
Year dummy 87	0.85 ***	0.86 ***	0.86 ***	0.85 ***	0.86 ***
Year dummy 88	0.31 ***	0.29 ***	0.28 ***	0.28 ***	0.29 ***
Year dummy 89	0.30 ***	0.30 ***	0.29 ***	0.30 ***	0.29 ***
Relative Size of Conf. (C3-1)	-0.09 ***	-0.05 ***	-0.06 ***		
Relative Size of IF. (C4-1)	0.11 **			0.01	-0.03
N of Unions	0.01				
Union Members	0.04				
Union Density	-0.05	-0.02		-0.05 *	
Adjusted R-square	0.991	0.989	0.990	0.988	0.987
N	34	34	34	34	34

Note: *. P < 0.10, **. P < 0.05, ***. P < 0.01

to test for the effect of the *size* of union confederations and union industrial federations.

In the *M-1* family of models, the coefficients on the number of union confederations (national-level concentration; C1) and the year dummy

variables are all in the predicted direction and are statistically significant at the .01 level. The impact of union concentration on the frequency of industrial disputes is statistically significant in almost all the sub-models (at least at the level of 0.05). Lower union concentration at the national level, as expected, produces more labor disputes. This indicates that a small number of national confederations is likely to be better able to coordinate or at least minimize the impact of intra- or inter-organizational conflicts. However, contrary to our expectation, a greater number of industrial union federations (C2) is not associated with greater strike frequency. Only in Model *M-1B* and *M-1B-3* among several sub-models in the *M-1* family, does the number of industrial union confederation exhibit a statistically significant impact on strike statistics.

The association between the *concentration by size* of both confederation and industrial federation and the strike activities is statistically summarized in Table 5 (*M-2* family). In the *M-2* family model union concentration is measured by the membership (size) of union confederations and union industrial federations. In the *M-2* family, the statistical influence of *concentration by size* (C3/C4 as well as C3-1/C4-1) of both union confederations and union industrial federations on strike activity is weaker than that of C1 and C2.

Even though the relative size of union confederations (C3-1) in the several sub-models in the *M-2* family has a substantial influence on strike frequency, this appears to reflect the direct effects of national union confederation concentration (C1). That is, the statistical influence of C3-1 on strikes is exactly the same as the effect of national-level concentration (C1) because the former is the reverse function of the latter.

Another interesting thing is the role of the year dummy variables on strike frequency. Whenever they are included in the regression models, the year dummy variables are statistically significant at the 1 percent level. This indicates there are a number of unmeasured year characteristics (structural changes or variations in the time periods) that affect the frequency of industrial disputes.

CONCLUSION

In the 1990s in Korea, union concentration at the confederation level and the industrial federation level decreased as rival confederation and industrial federations were formed by democratic union groups.

Overall, our data provide substantial evidence of an association between the degree of concentration in national-level unions and strike activity. The regression analysis indicates that the greater union monopoly (*concentration*) at the national level is, the lower industrial conflicts are. This suggests that where unions' representative monopoly is greater, those unions are able to better coordinate intra- and inter-organizational conflicts, and this leads to lower strike frequency. Future research should examine whether the same patterns hold in other countries and in other time periods.

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