Environmental Determinants of Centralization of the Collective Bargaining Function in American Unions

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ABSTRACT

This paper examines the extent to which characteristics of local union
affiliates, employers, and product markets influence centralization of
authority over collective bargaining in national unions in the United States.
We hypothesize three strategies for unions to follow and delineate the
empirical implications of each. Our results suggest that the proportion of
the union workers in its jurisdiction organized by the union, the degree of
unionization in the industries, the degree of heterogeneity of industries that
the union organizes, and the size of local affiliates each influence the
centralization of collective bargaining decisions. Implications of a model of
the national union as an information provider are most strongly supported.

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There is a small but growing literature that suggests that the internal

characteristics of unions influence a wide variety of industrial relations and

labor market outcomes (e.g., Roomkin, 1976; Fiorito and Hendricks, 1987;

Maranto and Fiorito, 1987; Delaney, Fiorito, and Masters, 1988). In this

paper we examine the causes of variation in the internal governance structures

of U.S. national unions. In particular, we seek to explain a key aspect of

the vertical plane of union structure: the locus of control within the

hierarchy of a national union over collective bargaining by affiliated

bargaining units. Although there is a long history of similar investigations

of the internal hierarchical structure of firms (e.g., Caves 1980; Williamson

1985), the literature on union structure is sparse.

Our analysis proceeds from the assumption that the primary objective of

unions is to improve the terms and conditions of employment for their members.

This is analogous to the assumption that the primary motivation for the

formation of the firm is to maximize profits for the owners, which may be

accomplished by minimizing the sum of the transaction costs and production

costs associated with achieving these profits.

In the United States, collective bargaining has historically been the

primary "method" of accomplishing that goal.[1] Collective bargaining refers to

the negotiation of an agreement with the employer governing the terms and

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[1]Sidney and Beatrice Webb (1911) describe three methods by which workers might
improve their lives through collective action: mutual insurance, collective
bargaining, and legislative enactment. Fiorito, Gramm and Hendricks
(forthcoming) have recently suggested expanding that list to include
monitoring and shaping public opinion. They point out that unions often
pursue multiple methods because they are complementary. There may be more
centralization of control over some methods than others. We focus solely on
the locus of control over collective bargaining.

conditions of employment. The formal structure of collective bargaining in the U.S. is decentralized. Although there are notable exceptions, the bargaining unit usually comprises employees of a single firm, and often is not even firm-wide. In most instances, it is the local union or a group of local unions who are signatories to the collective bargaining agreement that they negotiate with the employer. However, the national union, which is a federation of local unions, may have policies and rules that exert more or less control over the bargaining process and the content of collective bargaining agreements negotiated by member locals.[2]

Kochan and Katz (1988: 123-131) emphasize that the choice of strategies to achieve union goals, the bargaining structure with which the union must deal and the organizational structure of the union interrelate. The same theme underlies much of the literature on the structure of firms (e.g., Chandler 1962, 1977), which emphasizes the interrelationships of business strategy, market structure and firm internal structure. The key point is that strategy, bargaining structure, and organizational structure are potentially choice variables for the union; therefore, the determinants of one will be interlinked with the determinants of the others. In the next section we investigate several alternative strategies for the union and the implications of each for organizational structure.

I. The Implications of Union Bargaining Strategies for Centralization

As Bok and Dunlop (1970: 108) note "In theory at least, the union will maximize the welfare of its members by decentralizing its bargaining in order to give as much autonomy to particular groups as it can without jeopardizing

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[2]Kochan (1980:192-200) notes that decision-making authority on labor relations matters is more centralized within U.S. corporations than formal bargaining structure would suggest. He characterizes managerial decision-making as highly centralized in regard to key strategic decisions. See especially page 200.

the interests of the larger body of members." Ulman (1955: 213) indicates that a distinguishing aspect of U.S. national unions was the persistence of a spirit of local separatism and autonomy. Thus, we take as a starting point that U.S. unions would prefer to achieve their goals through decentralized units that maximize the community of interest in bargaining outcomes among employees.[3] However, decentralization may be a highly inefficient method of achieving certain goals. Therefore, it is necessary to analyze the influence of particular strategies on the resulting union structure and the locus of control within that structure.

Although unions may choose from a variety of bargaining strategies to accomplish their objective of improving employment conditions for their members, those strategies can be categories under three general headings: (1) a monopoly strategy, (2) an efficiency strategy, and (3) a monitoring strategy. In reality, these strategies are not always mutually exclusive. "To the contrary, we should expect unions to pursue members' interests in all possible forms" (Hirsch and Addison, 1986: 21). However, the characteristics of the national union's local affiliates and the environment in which they bargain will influence the relative success of, and therefore the relative reliance upon, each of the three strategies. As a result, unions may vary in the extent to which they emphasize one strategy over another. Moreover, centralization of control over collective bargaining is more compatible with some strategies than with others.

We can think of each strategy as reflecting an underlying view or model of how unions improve employment conditions for their members. And each of these "models" generates some testable hypotheses linking observable variables

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[3]Problems with aggregation of preferences and imperfect agents (Faith and Reid, 1987; North, 1988) also argue for decentralization of decision making.

to the degree of centralization of bargaining within a national union. We now define each strategy/model and the implications of a national union's reliance on each strategy for the optimal locus of control over collective bargaining.

The Monopoly-Strategy Model

There are two methods of increasing the compensation of union members through monopolization of the labor market. The first is to control the supply of labor by forming a craft union. The second is to use the threat of imposing strike costs to force the employer to acquiesce to wage demands (i.e., form an industrial union).

The union must be able to eliminate labor cost competition among many if not all the firms in the industry if it is going to be successful in redistributing economic profits to its members. There are two necessary conditions for taking labor costs out of competition. The union must first eliminate nonunion competition by organizing all the relevant producers in the product market,[4] which gives it monopoly control over the supply of labor. It must then eliminate labor cost competition among the unionized producers in the market by standardizing the terms of employment, thereby mimicking a monopolistic seller of labor.

Thus, effective pursuit of the monopoly strategy requires eliminating competition from other unionized workers and nonunion workers. The potential for competition among unionized workers is not trivial. Historically, such competition commonly resulted when several unions attempted to organize the same occupation in the same area. This was the primary motivation for the emergence of the doctrine of "exclusive jurisdiction" begun under the old

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[4]For example, in a competitive industry in which there was no pre-union variation in production costs among firms, it would be necessary to impose standard rates on all producers in the industry. In contrast, in industries characterized by variation in production costs, the union would only need to enforce a standard rate among the low cost producers.

American Federation of Labor (A.F.L.). Under this doctrine only one national union had jurisdiction over the organization of workers in a specific craft. The rise of mass production using semi-skilled workers and the passage of the Wagner Act contributed to the evolution of this early doctrine to encompass a notion of exclusive representation based on *industry* or craft. The emergence of industry-based unions resulted in a substantial increase in interunion organizing rivalries, and the resolution of such jurisdictional disputes between unions was a major stumbling block to the merger of the A.F.L. and the Congress of Industrial Organizations (C.I.O.). The resolution of these interunion disputes is now an important function of the A.F.L.- C.I.O., which is the merged federation of national unions.

Competition among union workers can occur even when a single national union organizes all workers in the relevant product market. Specifically, unionized workers at one firm might settle for lower wages than those at a second competing firm, thereby putting the second firm at a competitive disadvantage. In other words, if one group of unionized workers accepts terms that are below the standard rate, the eventual result is downward pressure on terms and conditions throughout the industry.

Intraunion competition can occur even between different plants in the same firm. The firm might offer a low wage to workers in one local union and threaten to move work to a plant represented by a second local if the first local rejects the offer. It can make the same offer to the second local. The

union can only solve this bargaining problem -- the "prisoners' dilemma"[5] --
by the centralization of bargaining decisions through either of two non-
exclusive methods. Both can be viewed as formalized substitutes for "organic"
solidarity. First, bargaining units can be established that incorporate all
workers who might be "whipsawed" by employer demands.[6] Second, even if the
parties preserve separate bargaining units, the national union can accomplish
the same end by locating control over negotiated terms and conditions of
employment at a level that reduces firms' opportunities to whipsaw local
unions.

Where product markets are local in scope, local organization may be
sufficient to bring about the conditions necessary to allow a monopoly
strategy. However, when product markets extend beyond the jurisdictional
boundaries of local unions some mechanism for centralizing control over the
terms of employment negotiated by competing locals is necessary for
enforcement of the standard rate policy and, as a result, for the success of a
monopoly strategy.

The formation of national organizations by local craft unions was a
response to such pressures for centralization. Early craft unions organized
around the territory corresponding to the scope of the local product market

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[5]Suppose two prisoners are isolated in two rooms and they are each told that
they will receive lighter sentences if they confess before the other. Suppose
also that the police could not convict either prisoner without the testimony
of the other. If the prisoners cannot coordinate their actions to eliminate
incentives to "cheat," then both will be convicted. Obviously, criminals
place a strong emphasis on not "squealing." In support of the applicability of
this analogy, note that the term "fink" has a similar meaning for both
criminals and union members, i.e., one who welches on terms designed for the
collective good for the sake of individual advantage.
[6]Cappelli(1987a) argues that wages outcomes are very sensitive to market
conditions when the negotiating structure is decentralized but that these
outcomes are insensitive to market conditions when bargaining is industry-
wide. He finds empirical support for these notions when they are applied to
data from the British coal industry.

and around occupations. Ulman's (1955) analysis suggests that the expansion

of markets was a primary reason for the formation of national craft unions.

As the area of competition grew, the local craft unions had to consider how to

extend their control over the supply of labor throughout the expanding market.

A national organization offered several distinct advantages in this regard.

First, it provided potential economies of scale in organizational attempts --

full-time national organizers might be more efficient.[7] Second, a national

organization made it possible to control entry into the craft and had the

power to blacklist strike-breakers (Faith and Reid, 1987) and rate-breakers.

Finally, a national union had the capacity to coordinate wage demands and

strike activities, which helped standardization of wage rates. Thus, local

craft unions had strong incentives to federate horizontally as markets

expanded geographically, and

> ...to surrender some elements of autonomy. The degree of
> sacrifice required varied considerably from union to union, but
> some curtailment of local discretion was incurred in the following
> spheres of activity: the initiation of work stoppages, the
> determinations of initiation fees, and control over jobs. (Ulman,
> 1955: 610)

In short, national organizations became necessary to maintain local craft

unions' monopoly power in the face of expanding markets. Thus, the threat of

competition from nonunion producers and among unionized craft workers in

different locales created incentives for the formation of national labor

organizations, and for some centralization of control over the organizing and

bargaining functions of those organizations.

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[7]Recent calls for greater use of volunteer rank and file members in organizing
(e.g., Zack, 1985) by national unions and the AFL-CIO superficially contradict
the notion of efficient professional organizers, but note that these calls
emanate from central union authorities and envision the use of rank and file
volunteers in centrally-orchestrated campaigns.

Lazear(1983) provides further justification for centralization of decision making under the monopoly strategy. In his model the union considers the impact of its wage decisions on employment in the union sector and the impact on wages in the nonunion sector. Suppose that individual locals (who are small compared with the market) all disregard the employment and nonunion wage implications of increasing wage demands and also ignore the possibility that increased wages will lead to increased activity by firms to defeat unions. Here Lazear shows that the wage selected by the locals can be either too high[8] or too low compared with the wage differential that will maximize the welfare of all union members.

If individual locals realize the possibility for this myopic behavior by some or all other locals, there will be an incentive to delegate wage-setting responsibility to nationals. Thus, like the prisoners' dilemma problem, the local union myopia problem suggests that centralization of decision making is more probable when individual locals are small compared with their appropriate market.

Widespread concession bargaining in the late 1970s and early 1980s produced many instances in which national unions asserted authority in order to prevent erosion of standard rates. For example, the 1979 UAW-Chrysler concessionary settlement undoubtedly contributed to later concessionary settlements at GM and Ford in 1982 and, subsequently, to the UAW's stress on returning Chrysler workers to "parity" with GM and Ford workers in the 1985 negotiations (Buss and McNish, 1985). A more recent example involved the UAW

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[8]For example, United Food and Commercial Workers (UFCW) Local P-9's refusal to accept the standard concessionary agreement negotiated by the UFCW with Hormel precipitated the lengthy strike by P-9 at Hormel's Austin, Minnesota plant in 1985-86 (Bureau of National Affairs, 1986b). Local P-9's efforts to obtain a rate that _exceeded_ the national standard eventually lead the UFCW to place the local under trusteeship (Bureau of National Affairs, 1986a).

and Mack Trucks. Mack negotiated concessions with its locals, which were subsequently vetoed by the UAW's Executive Board. The national UAW then negotiated its own "tentative" concessionary pact with Mack, which was upheld in court after it had been approved by the local unions despite efforts by the national UAW later to void the pact (Bureau of National Affairs, 1987b; 1988).[9] Such local level concessionary bargaining in the auto industry contributed to a special four-day convention in 1987 "dominated by debate on 'whipsawing' at which delegates considered but did not pass a constitutional amendment forbidding locally-negotiated exceptions to national contracts" (Bureau of National Affairs, 1987a: A-4). The UAW is not the only example. As Cappelli(1987b) notes, the Machinists (IAM) placed its Braniff local under trusteeship after it agreed to concessions, and in 1984 the Air Line Pilots' (ALPA) national organization "reasserted its role as the centralized decision-making authority of the union through a provision that no contract be binding unless signed by the national president." ALPA's board of directors (comprised of local delegates) also accepted resolutions in 1984 that require "the physical presence, or at least monitoring presence, of the national organization at contract negotiations," and "formal notification of the national organization of any negotiations between a pilot group and an airline." (Ott, 1984: 32)

Efficiency-Strategy Model

Unions also may rely on an efficiency strategy to improve the terms and conditions of employment for their members. The notion that a union can improve the efficiency of the firm whose workers it represents, thereby increasing the firm's profitability and the joint well-being of both firm and

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[9]The national UAW's decision to repudiate its earlier "tentative" agreement apparently stemmed in part from unfavorable arbitration decisions following the initial accord.

workers, is a central element of two recent theoretical models of unions, the collective voice model (Freeman and Medoff, 1984) and the transaction cost model (Williamson, 1985). Perlman (1928: 277) notes that "It is not at all unnatural that a unionism which is intent upon job opportunities should join with management in a joint campaign to reduce the cost of operation and raise efficiency - all for the 'conservation' of current job opportunities."

The collective voice model assumes that individual dissatisfied workers have two alternative means of expressing their dissatisfaction to management. First, they can "voice" their dissatisfaction to management directly, and hope that some action will be taken. Second, they can leave the firm. Both of these avenues of communication have drawbacks. Workers may be reluctant to voice their complaints to management individually. They might fear retaliation or they might be skeptical of management's willingness to respond to the complaints of one person. The flip side is that management may not act on individual complaints because it is not clear that they represent the preferences of anyone but the complainant. Relying on quits to convey worker dissatisfaction imposes high turnover costs on both labor and management. In addition, the preferences of workers who quit may be quite different from those of the average worker. Thus, shaping the terms and conditions of employment to those who are most likely to quit may lead to an inefficient package of compensation and employment conditions. Unions, by providing mechanisms to collect information about the preferences of all workers and convey that information to the employer, can provide a third alternative -- collective voice.

This model suggests that collective voice can improve efficiency in two ways. First, collective voice provides management with better information about the average worker's preferences than either exit behavior or individual

voicing of complaints. This leads to a package of compensation and employment conditions that better fits workers' preferences than would occur otherwise. The efficiency properties of collective voice stem, in part, from the more efficient contracts that result from the improved communication of the average worker's preferences. In addition, the improved communication and the more desirable employment contract that results may enhance worker morale, encourage cooperation, and reduce quits, which all can lead to increased productivity.

As Hirsch and Addison (1986: 191) have observed, there is a good deal of similarity between the collective voice model of unions and the transaction cost model as applied to unions by Williamson (1985). The latter model assumes that organizations will choose a governance structure that economizes on transaction costs. Under this model, parties to idiosyncratic exchanges have an incentive to develop complex governance structures to assure the longevity of the exchange relationship, because ending such idiosyncratic exchange relationships imposes high transaction costs. This suggests that the formal and enforceable governance structures provided by unions through collective bargaining will be more desirable in employment relationships in which both workers and the firm have invested in the workers' acquisition of firm-specific skills (Williamson, 1985). Williamson (1985: 241) emphasizes that the governance structures that unions negotiate with firms can improve efficiency along several dimensions including the following: wage and benefit determination, enhancement of productivity through human asset development, improved dispute settlement procedures, increased regard for dignity, and more efficacious adaptation.

The implication of both models is that a union may consciously choose a bargaining strategy that is designed to result in more efficient operations at

the firm with which it bargains and, thus to increase the firm's profitability. If the employees represented by the union will benefit from the increased profitability, such a strategy should result in improvements in the terms and conditions of employment for those members.

An efficiency strategy may be best accomplished under a decentralized governance structure. Such a strategy will be effective only if the union's governance structure permits work rules and other terms of employment to be tailored to local circumstances and needs. As Raskin (1987: 7) notes, "No cookie cutter can stamp out the ideal plan for employee involvement; each must be fashioned with infinite care to meet the joint needs of a particular enterprise and its workers." Thus, strongly emphasizing an efficiency strategy for improving the terms and conditions of employment, unlike emphasizing a monopoly strategy, would suggest decentralized control of the bargaining process and the content of negotiated agreements.

The Monitoring-Strategy Model

Certain conditions may make it desirable to centralize some aspects of the bargaining process (as opposed to centralization of control over the content of negotiated collective bargaining agreements) regardless of whether a monopoly strategy is feasible or desirable. Effective bargaining may require a good deal of information about the activities and financial condition of the firm(s) with which the union bargains, in addition to information about key environmental circumstances (e.g., labor and product market conditions). Unions, therefore, may have a substantial stake in monitoring the actions of their bargaining partners and the environment in which they bargain. Although some local bargaining units may be well-equipped to carry out such monitoring activities, other locals may lack the financial

and human resources to do so.[10] In such circumstances, the national union may act as the agent of its affiliated locals in this monitoring process. This, in turn, may require participation by the national union in various aspects of the bargaining *process* to insure efficient delivery of the national union's information and expertise to local bargaining situations. In other words, effective monitoring may require involvement of the national union in the bargaining process, but the motivation for that involvement is to provide assistance to locals in their bargaining activities rather than to exert control over them. We would expect, therefore, to observe centralization of some aspects of the bargaining process in national unions in which the national union has a comparative advantage, compared with its affiliated locals, in the acquisition of the information required for effective bargaining.

II. An Empirical Model of Centralization of Control over Bargaining

The construct that we seek to model is the locus of control over collective bargaining within national unions. Control can be conceptualized as varying along a continuum, with complete *centralization* of control over collective bargaining at the apex of the hierarchy (i.e., the national level of the organization) representing one extreme, and with complete *local autonomy* (i.e., decentralization) at the other extreme. Our discussion of bargaining strategies, however, suggests that control over bargaining may comprise two components: (1) control over the actual content of the negotiated agreement, and (2) control over the bargaining process. A monopoly strategy may motivate centralization of control over the former -- allocating control

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[10]Note that the average U.S. local has about 200 members (Mills, 1989: 79) and that union dues typically amount to one or two hours' pay per member per month (Mills, 1989: 83). The resources available to the typical local are thus small.

over the content of locally negotiated agreements to the national union eases

enforcement of a standard rate. In contrast, centralization of control over

the bargaining process may be motivated by either a monopoly strategy or a

monitoring strategy (or both). On one hand, control over the process gives

the national union an indirect means of influencing the content of agreements

negotiated by affiliated locals. For example, requiring locals to include a

representative of the national union on their bargaining teams gives the

national union an avenue through which it might influence the content of the

collective bargaining agreement that they negotiate. On the other hand, a

monitoring strategy may require some centralization of the bargaining process

even without a monopoly strategy. Thus, the national union's motivation for

requiring local bargaining teams to include national representatives may

simply be to provide assistance to the local, in the form of information and

expertise. Conversely, an efficiency strategy may require decentralized

control over both the process and content of collective bargaining.

Measures of Centralization of Control over Bargaining

While the construct of centralization is widely understood, it cannot be

measured directly and has no obvious empirical counterpart. The preceding

discussion suggests that there are two latent (i.e., unobservable), continuous

dependent variables of interest, each indexed by $i = 1, 2$:

   η_{1j} = the degree of centralization over the bargaining process;

   η_{2j} = the degree of centralization over the content of the negotiated

      collective bargaining agreement;

where $j = 1,\ldots,n$ refers to the national unions in the sample. Although we

cannot observe any of the η_{ij} directly, we can observe rules adopted by

national unions that govern the locus of control over bargaining.

Following Lahne (1970), we rely upon the provisions of national union constitutions as our source for information regarding the allocation of control over the decisions/activities that comprise the bargaining process. Such constitutional provisions are the ". . . vehicles of centralization of control" (Lahne, 1970: 188), in the sense that they make decisions/actions taken by a subordinate body--the affiliated bargaining unit--subject to the approval of a higher level body in the organizational hierarchy (i.e., an intermediate level or the national level). Specifically, we have gathered information from a sample of 83 national union constitutions on nine *observed* dependent variables that represent the degree of centralization of control exerted over collective bargaining:

BLSCORE = the level(s) at which bargaining takes place;

DSSCORE = the level(s) at which the decision to strike occurs;

DTSCORE = the level(s) at which the decision to end a strike occurs;

FDSCORE = the level(s) at which bargaining demands are formulated;

NPSCORE = the level(s) from which negotiating personnel are drawn;

APPROVE = the level(s) at which local bargaining demands must be approved;

NATAPVL = an indicator variable equal to one if contracts negotiated by affiliates must be approved by the national union, and equal to zero otherwise;

NATPROH = an indicator variable equal to one if the national constitution prohibits certain provisions in contracts negotiated by its affiliates, and equal to zero otherwise;

NOLOCRAT = an indicator variable equal to one if the national constitution does not require local ratification of contracts, and equal to zero otherwise.

We scored the variables, APPROVE, BLSCORE, DSSCORE, DTSCORE, FDSCORE, and NPSCORE on a five-point scale, with a score of five representing the highest degree of centralization. The scores may be interpreted in the following manner:

1 = local control of activity or no provision specified

2 = local and intermediate control of activity

3 = local and either intermediate or national control of activity

4 = intermediate and national control of activity

5 = national control of activity

BLSCORE, DSSCORE, DTSCORE, FDSCORE, and NPSCORE represent the degree of centralization over various aspects of the bargaining process; APPROVE, NATAPVL, NATPROH, and NOLOCRAT measure rules that more directly influence the allocation of control within the organization over the actual content of the negotiated collective bargaining agreements.

Empirical Specification

Our model consists of the following system of linear structural equations:

(1) $\eta_{1j} = \gamma_1' X_j + \zeta_{1j}$,

and

(2) $\eta_{2j} = \gamma_2' X_j + \beta_1 \eta_{1j} + \zeta_{2j}$,

where η_{1j} and η_{2j} are the latent dependent variables defined above and X_j is a qx1 vector of observed explanatory variables. β_1 is a coefficient representing the direct causal effect of η_{1j} on η_{2j}, γ_1 and γ_2 are vectors of coefficients representing the direct causal effects of the independent variables in the vector X on the latent dependent variables (η_{1j} and η_{2j}), and ζ_{1j} and ζ_{2j} are random error terms.

We do not observe the latent dependent variables. However, we do observe a vector, y_{pj} (p = 1,...,5), containing the five observed dependent variables representing the locus of control over the bargaining process, BLSCORE, DSSCORE, DTSCORE, FDSCORE, and NPSCORE, and a vector, y_{pj} (p = 6,...,9), containing the four observed dependent variables representing the locus of control over the content of the collective bargaining agreement, APPROVE, NATAPVL, NATPROH, and NOLOCRAT. The measurement model for each of the y-variables is the following:

(3) $y_{pj} = \lambda_p \eta_{ij} + \epsilon_{pj}$,

where i=1 if p < 5 and i=2 otherwise, λ_p is a coefficient representing the effect of η_{ij} on y_{pj}, and ϵ_{pj} is the residual.

In addition, the model assumes that one latent dependent variable, η_{1j} (which we label PROCESS), has a direct causal effect upon the other latent dependent variable, η_{2j} (which we label CONTENT). Centralization of control over the bargaining process may provide an indirect means for a national union to exert control over the content of agreements negotiated by affiliates. Since the national union jointly choses η_{1j} and η_{2j}, estimation of equation (3) by OLS would result in simultaneity bias.

We estimate the model using LISREL, a computer program for estimating the unknown coefficients in a set of linear structural equations. The advantage of the LISREL program is that it is based on a general model that is designed to handle models in which there are both latent variables and observed variables, in which the observed variables may be measured with error, and in which there is simultaneous causality. LISREL estimation provides consistent estimates of the unknown parameters in such models and tools for assessing the model's fit (Jöreskog and Sörbom, 1984: I.26, I.36).

We present a path diagram in Figure 1. The variables in the left-hand column of the path diagram are the observed (independent) X-variables in the model. These observed independent variables are defined in Table 1. We hypothesize the links between each of these observed independent variables and the latent dependent variables in the next subsection.

INSERT FIGURE 1 & TABLE 1 ABOUT HERE

Hypotheses

Our preceding discussion of the implications of a union's bargaining strategy for centralization of control over collective bargaining suggests that different strategies have different implications for the optimal locus of control over collective bargaining within the hierarchy of the national union. Reliance on the monopoly strategy may require centralization of authority over both the collective bargaining process and the content of the resulting negotiated agreement. In contrast, centralization may undermine an efficiency strategy. Finally, centralization of control over the bargaining process, but *not* the content of the negotiated agreement, will be compatible with a monitoring strategy under circumstances in which the national union has a comparative advantage over affiliated locals in carrying out monitoring activities related to bargaining. Since unions may pursue multiple strategies simultaneously, we specify the model to allow paths from the independent variables associated with all three strategies to both the CONTENT and PROCESS latent variables. To the extent that some independent variables only measure monitoring effects, we might expect them to have no influence on the CONTENT construct. Specific hypotheses based upon our analysis of each strategy's implications are summarized below.

Hypotheses Related to the Monopoly Strategy. Effective implementation of a monopoly strategy may require centralization of control over the content

of the collective bargaining agreement, which may be accomplished directly by locating control over formulation of demands and approval of the contract at the national level of the organization or indirectly through centralization of control over the bargaining process. The ability to carry out this strategy depends on the product market conditions in the industries in which the union's members work. If these industries are highly competitive, the union must be able to organize the entire market (take wages "out of competition") and to centralize decision making to avoid whipsawing within the organized markets. However, if the degree of unionization is low, a strategy of centralized decision making is likely to lead to less flexibility in dealing with local problems than is necessary for competitive firms to survive. Thus we expect that unions in unconcentrated industries (UNCONC), unions that are located in industries with a high degree of unionization (UDENSITY), and unions who represent a substantial share of the unionized workers in their jurisdiction (PERCENT) to have more centralized decision making.

Centralization is desirable, other things equal, under circumstances in which it otherwise would be easy for employers to whipsaw the union. The geographical extent of the market may play a role here. If the product market is national in scope and plants are located in a variety of labor markets, employer opportunity to whipsaw will be maximized. Here unions should respond by centralizing decision making. Thus, we predict a positive relationship with NATLMKT, which is high when the product market is national and the labor market is diffuse. If firm size is also a proxy for whipsawing ability, then we also would expect a positive relationship with centralization. However, small firm size also may be a proxy for lack of market power. Here a more flexible approach may be required and a negative relationship may exist. Thus, the impact of FIRMSIZE may be ambiguous.

Finally, national unions whose membership is distributed across a wide range of industries (measured by HERF) may find it difficult to enforce a standard rate policy over highly diverse local situations, and thus, should prefer decentralized control.

Hypotheses Related to a Monitoring Strategy. We expect to observe greater centralization of *the bargaining process*, but not the content of the negotiated agreement, in national unions that have significant advantages over local unions in the ability to monitor aspects of the bargaining partners' behavior and environmental conditions relevant to bargaining. The need for national involvement in bargaining to help effective monitoring should decrease with the average size of the local union (LOCSIZE), *ceteris paribus.* Controlling for the size of local affiliates, the monitoring motivation for centralization of the bargaining process should increase with the size of the firms with which local affiliates bargain (FIRMSIZE). There are several reasons for this. First, Faith and Reid (1983) argue that worker trust in the actions of the firm declines with the size of the firm. This suggests that unions whose affiliates bargain with large firms may place a greater emphasis on the monitoring strategy. In addition, it may be more difficult to acquire information about employer activities in large firms. For example, the firm might begin systematically to reduce employment at each unionized plant and move operations to new nonunion sites. Individual locals would be unlikely to perceive such a systematic change. However, an attentive national organization could detect such patterns and potentially coordinate a more effective response than the locals could independently. Thus, to monitor effectively the actions of the firm that have implications for bargaining, the governance structure of bargaining should mimic the structure of the firm. We would therefore anticipate more centralization of union bargaining activities

in national unions whose local affiliates must deal with large, multi-divisional firms. Schacht (1985), for example, argues that the internal structure of the Communication Workers of America was a direct response to the centralization of authority within AT&T, its primary bargaining partner. The divestiture of the Bell Operating Companies from AT&T in 1984 stimulated significant changes in the structure of the union and in the degree of centralization of bargaining in the industry (Hendricks, 1987).

Locals affiliated with national unions representing craft workers (CRAFT) may have little need for national monitoring both because the locals have adequate financial resources (due to the high earnings of their members) and because the relevant labor and product market conditions are local in scope. National unions that represent a substantial share of an industry's workers (measured by PERCENT) are likely to have significant advantages over locals in gathering information about the behavior of firms in the industry and industry conditions in general, which should motivate centralization of the bargaining process. In contrast, national unions with membership spread across many industries (HERF) lack such information advantages and so should have little incentive to centralize control over the bargaining process.

Hypotheses Related to the Efficiency Strategy. Our previous discussion suggests that centralization of control over collective bargaining is incompatible with a strong emphasis on an efficiency strategy. Reliance on an efficiency strategy requires a union governance structure that permits the negotiation of a contract that it carefully tailors to local needs. Local bargaining pairs facing unique environmental conditions may be more likely to rely on an efficiency strategy over a monopoly strategy to improve the terms and conditions of their members. This suggests that national unions will be

less likely to centralize control over collective bargaining when their local affiliates bargain under highly diverse conditions (HERF).

Workers also may vary in their preferences for an efficiency strategy. For example, workers who identify strongly with management may be more likely to prefer an efficiency strategy than those who do not. Unfortunately, we lack the data to examine links between worker characteristics that may influence preferences for an efficiency strategy and the degree of centralization of control over bargaining in national unions.

In summary, conditions that encourage reliance on a monopoly strategy should increase the degree of centralization of control over both the bargaining process and the content of the negotiated agreement. Thus, UDENSITY, UNCONC, PERCENT, and NATLMKT should have positive impacts and HERF a negative impact on both PROCESS and CONTENT. Conditions that encourage reliance on a monitoring strategy should increase centralization of the bargaining process, but not centralization of control over the content of the negotiated agreement. Thus, LOCSIZE, HERF, and CRAFT should have negative impacts and FIRMSIZE and PERCENT should have positive impacts on PROCESS, but no impact on CONTENT. Finally, we have included a variable measuring whether the union primarily bargains under the Railway Labor Act. Since the Act requires specific structures for bargaining and since the industries covered by the Act have been historically regulated, it may influence the degree of centralization of the union. We do not predict a sign for its coefficient *a priori*.

Measures of Explanatory Variables

Except for LOCSIZE, each of the X-variables is designed to measure some characteristic of the national union's product market jurisdiction that we hypothesized to influence the locus of control over collective bargaining

within the organization. Each union's jurisdiction must be identified to measure such characteristics. In other words, one must answer this question: In what industry or industries are the national union's members concentrated? Thus, information on the distribution of each union's membership across industries is crucial to addressing this question and defining these variables. Unfortunately, other than some very crude data reported in the Directory of National Unions,[11] no data exist that break down the membership of national unions by industry. In the Appendix, we describe: 1) the data base that we have constructed to be able to observe the distribution of each national union's membership across industries; and 2) our decision rules for assigning industry characteristics representing the industry-based exogenous variables in our model to each national union in our sample. In brief, we developed information on the industry distribution of national unions' members from two large (numbering in the thousands) samples of union contracts. Based on this information, we then assigned industry characteristics to national unions using two alternative assignment criteria. The first criterion assumes that the characteristics of the industry in which the largest concentration of the union's members are found strongly influence national union governance structures - a "primary jurisdiction criterion." The second assumes that unions adopt governance structures to serve the goals of the "average" member. Hence industry characteristics for a union are "synthesized" by compiling a weighted average of each industry level explanatory variable based on the relative frequency distribution of members across industries.

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[11]There are several problems with the information reported in the Directory of National Unions. First, the data are reported at the 1- or 2-digit SIC levels, which is too aggregated for our purposes. Second, information is not reported for all the unions in our sample. Finally, too little information is provided on the derivation of the information to assess its accuracy.

We therefore estimate our empirical results using two data bases. In the first, which we will refer to as the "primary jurisdiction data set" (denoted PJDS), we assign the variables CRAFT, FIRMSIZE, NATLMKT, PERCENT, UNCONC, and UDENSITY based on the national union's primary jurisdiction. In the second, which we will call the "weighted data set" (denoted as WDS), we define the aforementioned six explanatory variables as weighted averages over all the industries comprising the national union's jurisdiction. We also used the data on the relative frequency distributions of each national union's membership across industries to calculate the Herfindal index of the degree of dispersion of a union's membership across industries (HERF). The variable, RWLACT, is defined based on the national union's primary jurisdiction in our samples. Our results from the estimation of both models using both the primary jurisdiction sample and the weighted jurisdiction sample are reported in the following section.

III. Results

We discuss below our results for each of the observed explanatory variables in the model. Although we note significance levels, we caution the reader that most of the variables in the primary jurisdiction sample are not measured continuously, and thus, that we should not rely on the standard errors estimated for that sample using the LISREL program. This is because LISREL estimation of standard errors is sensitive to departures from the assumption that the observed variables are normally distributed (Jöreskog and Sörbom, 1986: IV.1). We can be more confident about using LISREL estimates of the standard errors to do hypothesis tests when using the weighted sample, because departure from the normality assumption is less problematic in that sample.

INSERT TABLES 2 and 3 ABOUT HERE

We provide the factor weights for our measurement model (Λ_y coefficients) and the coefficients for our structural equations (the γ coefficients) in Table 2 for the WDS and Table 3 for the PJDS. Except for DTSCORE, all the factor weights are greater than twice their standard errors for both samples. The correlation between PROCESS and CONTENT is positive and the β coefficient is significantly different from zero in the WDS. The weight on NOLOCRAT is negative for the CONTENT latent variable. This runs counter to our interpretation of both latent variables as positive measures of the degree of centralization. Since our predictions of the results in our structural equations are conditioned on this interpretation, some ambiguity may be present concerning the CONTENT equation. However, each of the other measures has a large positive weight. While our discussion below proceeds on the assumption that CONTENT is positively associated with centralization, we might expect less definitive results than for the PROCESS equation.

The monopoly-strategy model suggests that UNCONC, NATLMKT, UDENSITY, PERCENT should all be positively associated with both PROCESS and CONTENT. The coefficients for UNCONC and NATLMKT are not measured precisely but are positive for both latent variables in the PJDS and positive for CONTENT in the WDS. The coefficients associated with UDENSITY are always positive and are more than twice the magnitude of their standard errors for CONTENT in both samples and for PROCESS in the PJDS. The coefficients associated with PERCENT are positive and more than twice the size of their standard errors in the PROCESS specifications. In the CONTENT models, the PERCENT coefficient is positive when we estimate the model using the PJDS, but negative in the model estimated using the WDS. In both CONTENT models, we estimate the coefficient on PERCENT imprecisely.

The monitoring-strategy model predicts negative coefficients for CRAFT and the size of the national union's local affiliates (LOCSIZE) in the PROCESS equation. These predictions are confirmed in both data sets and the coefficients are significantly different from zero in the WDS. This model also predicts positive coefficients for FIRMSIZE and the percentage of unionized workers organized by this union (PERCENT) for the PROCESS equation. Both variables have positive coefficients and the PERCENT coefficients are significantly different from zero in both data sets.

All three of our strategy models suggest that centralization will be inversely related to the degree of heterogeneity among local affiliates of the national union (HERF). This result accrues in the CONTENT equations but not in the PROCESS equation where we would expect a strong negative effect. The coefficient is positive and approaches conventional significance levels in the WDS PROCESS equation.

While we've made no predictions for the coefficients for RWLACT, these coefficients are consistently positive for both data sets. Thus, either characteristics of the Railway Labor Act, such as the requirement of system-wide bargaining by occupational classification, or regulation in airlines and railroads may lead to more centralized structures in these unions.

Several alternative methods exist for evaluating the overall fit of the model. The χ^2 test is perhaps most often cited although small discrepancies between the model and the data can lead to rejection in large samples. This test is also very sensitive to departures from multinormality assumptions. In our case, we do not reject the model ($\chi^2 = 92.1$ with 89 degrees of freedom, p = .29) for the WDS, but we do reject ($\chi^2 = 115.4$, p = .03) for the PJDS. As noted above, this is probably a reflection of the measurement of our independent variables rather than a true indication of the choice process.

Tanaka and La Due(1989) suggest that the Jöreskog and Sörbom goodness of fit index is much more robust to deviations from normality. Values of the index near one indicate that a relatively large amount of the variances and covariances are jointly explained by the model (Jöreskog and Sörbom, 1984:I.40-I.41). Estimates of this index for the two data sets are of similar magnitude (.89 for WDS and .87 for PJDS).

A drawback of the LISREL estimation procedure is that the model assumes that the observed variables in the system "are quantitative variables in the sense that they represent measurements which are, at least approximately, on an interval scale" (Jöreskog and Sörbom, 1984:IV.1). When this assumption is violated, one should not rely on standard errors and goodness of fit tests. This suggests that when some of the observed variables are measured discretely, as happens in our data, one should be cautious about using the LISREL results to conduct hypothesis tests. For this reason, we have also estimated an OLS version of our model.

In the OLS version we model the latent dependent variables, η_{ij}, as a simple linear function of a set of exogenous explanatory variables:

(4) $\eta_{ij} = \gamma' X_j + \mu$, $i = 1, 2; j = 1,\ldots,n;$

where X_j is a Kxl vector of explanatory variables hypothesized to determine the degree of centralization over bargaining; γ is a Kxl vector of coefficients to be estimated, and μ_j is a random error term, which we assume is distributed N(0,1).

To estimate this model, we proxy the two latent dependent variables, η_{ij}, by two indices, PROCESSI$_j$ and CONTENTI$_j$, which we've based on the nine observed variables measuring the national union's constitutional provisions governing collective bargaining described above. We computed PROCESSI$_j$ by dividing each of the variables, BLSCORE, DSSCORE, DTSCORE, FDSCORE, and

NPSCORE by their standard deviations, and summing the resulting standardized variables. CONTENTI$_j$ is constructed in an analogous manner using the variables, APPROVE, NATAPVL, NATPROH, and NOLOCRAT. We estimate the models in which PROCESSI$_j$, and CONTENTI$_j$ are the dependent variables using ordinary least squares regression procedures.

The reader will note that this specification, unlike the LISREL specification, does not hypothesize any causal links between the endogenous variables. If centralization of control over the bargaining process gives the national union an indirect means of exerting control over the content of agreements negotiated by local affiliates, then we can treat Equation 4 as a reduced form equation.

The results of our OLS re-specification are given in Table 4. Except for the UNCONC coefficients estimated from the WDS, which we measure very imprecisely, all the coefficients have the hypothesized signs and support the hypotheses generated by our theoretical model.

IV. CONCLUSIONS AND IMPLICATIONS

Collective bargaining is the primary method by which U.S. unions can achieve their goal of improving the terms and conditions of employment for their members. In this paper we have delineated three bargaining strategies that unions can use to enhance their bargaining success - a monopoly strategy, a monitoring/information strategy, and an efficiency strategy - and have analyzed the implications of each strategy for the optimal degree of centralization of control over collective bargaining within the hierarchy of national unions.

Our empirical analysis supports the notion that there are two components to centralization of control over collective bargaining activities, control over the bargaining process and control over the content of negotiated

agreements. Our results are also consistent with the view that centralization of control over the bargaining process may serve as a mechanism for achieving centralization of control over the content of negotiated agreements. The estimated relationships between industry and union characteristics and the PROCESS and CONTENT constructs are consistent with the monitoring/information strategy for improving bargaining success and provide mild support for the monopoly strategy. This occurs because we are much more successful in explaining variation in the PROCESS latent variable than in the CONTENT measure of centralization. However, since our measurement model gives some ambiguous results concerning the CONTENT construct, we are reluctant to draw any firm conclusions that monitoring strategy considerations dominate union organizational design.

A comparison of the forces that lead to the centralization of control in national unions with the forces that lead to centralization in firms suggests that unions are more similar to employer or industry associations than they are to firms. Specifically, while a firm's choice of governance structure may have implications for its ability to monitor the environment, it is unlikely to influence the firm's market power. In contrast, union decisions about organizational design, like those of business associations, have a direct bearing on market power and information. The informational and monopoly problems faced by an organization are often closely intertwined, and thus monitoring and monopoly strategies will often be complementary for both unions and other types of associations. There are further parallels to political and economic theories of the formation of interest groups (Peltzman, 1989 and Becker, 1983) since the forces that lead to the formation of these groups are similar to the determinants of centralization for unions. Thus, we view our

work as a further contribution in the area of voluntary organizations in addition to the more narrow area of collective bargaining.

These results provide a snapshot view of the centralization of U.S. unions in the latter 1970's. A similar study done for another time period might yield considerably different results. In addition, we need to combine these results with studies of the evolution (Hannan and Freeman, 1987) and mortality of unions (Hannan and Freeman, 1989) to understand the structure of dominance and control within the labor movement.

Our analysis and results suggest several issues in need of further investigation. In this paper, we have focused on the following question: What motivates national unions to choose a given degree of centralization of control over collective bargaining? Further research is needed on the broader issue of what motivates national unions to choose particular types of internal governance structures, and perhaps even more important: What are the implications of a union's choice of governance structure for organizational success? Our monopoly strategy/model of centralization of control over bargaining, for example, suggests that higher centralization may result in a lower dispersion of wages and labor costs in the union's jurisdiction. Our monitoring/information model, on the other hand, suggests that in certain circumstances centralization of control over the bargaining process may give negotiators access to better and more complete information, which in turn may influence both bargaining power and strike activity.[12] A more thorough investigation of these issues would provide useful information to both labor

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[12]If, as many economic models of strike activity assume, imperfect information causes strikes, governance structures that improve the quantity and quality of information available to union negotiators should diminish the incidence of strikes.

leaders and policy-makers, and enhance our general understanding of the determinants of organizational effectiveness.

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TABLE 1

DEFINITIONS OF X VARIABLES**

UNCONC*   A dummy variable taking on a value of 1 for primary industries
             that have the value of shipments of the eight largest firms less
             than 33%.

UDENSITY*   The percentage of workers in the primary jurisdiction industry
             covered by collective bargaining.

NATLMKT*   A dummy variable taking on a value of 1 for primary industries
             that have national product markets and do not have supply
             concentrated in one geographic area.

FIRMSIZE*   The average size of firms in the primary jurisdiction industry.

PERCENT*   The percentage of unionized workers in the primary jurisdiction
             industry who are organized by this union.

CRAFT*   The percentage of workers in the primary jurisdiction industry who
             are members of skilled trades.

HERF   A Herfindal index of the degree of concentration of union members
             by 4-digit SIC code defined as:
$$1 - \sum_i \rho_i^2$$
             where ρ_i is the proportion of workers in the ith SIC industry.
             HERF is zero for perfect concentration.

LOCSIZE   The natural log of average local size for the union.

RWLACT   A dummy variable taking on a value of 1 if the primary
             jurisdiction of the union is in the railroad or airline industry.

* For the WDS these variables are defined by multiplying their values for each
industry by the ratio of the number of this union's members in the industry to
the total number of members in this union.
** Data sources are available from the third author on request.

Figure 1.
A Model of Centralization of Control
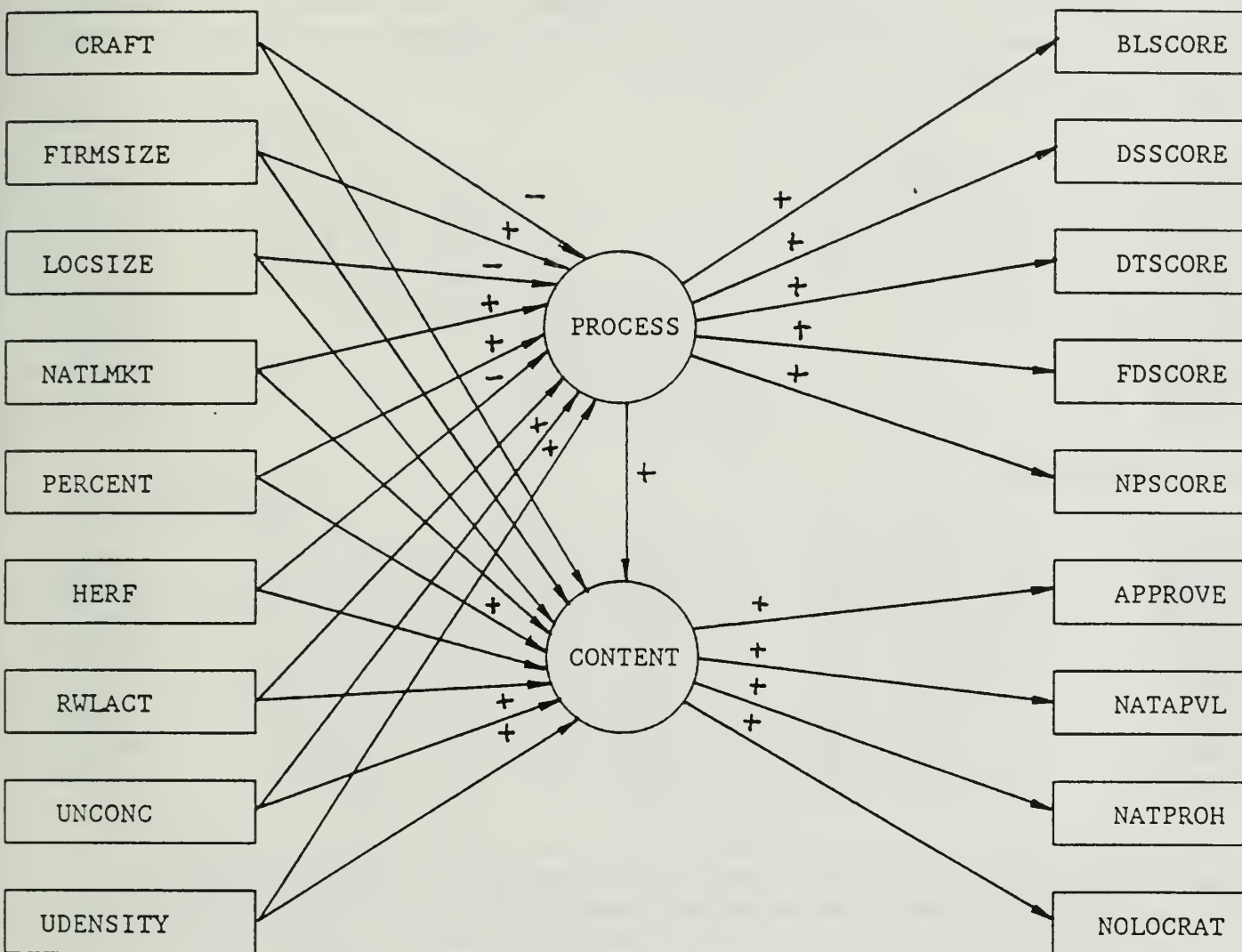over Collective Bargaining in National Unions

TABLE 2
Maximum Likelihood Estimates from LISREL
Weighted Data (N=75)

ETAs	Unstandardized		Standardized	
	PROCESS	CONTENT	PROCESS	CONTENT
LAMBDA Y COEFFICIENTS				
BLSCORE	1.000(.000)		0.706	
DSSCORE	0.236(.193)		0.167	
DTSCORE	0.827(.216)		0.584	
FDSCORE	0.647(.205)		0.457	
NPSCORE	0.576(.202)		0.406	
APPROVE		1.000(.000)		0.827
NOLOCRAT		-0.360(.157)		-0.297
NATAPVL		0.752(.163)		0.621
NATPROH		0.733(.162)		0.605
GAMMA COEFFICIENTS				
UNCONC	-0.045(.107)	0.103(.121)	-0.064	0.124
UDENSITY	0.107(.124)	0.286(.134)	0.152	0.346
LOCSIZE	-0.196(.096)	0.054(.107)	-0.278	0.065
NATLMKT	-0.079(.102)	0.065(.116)	-0.112	0.078
HERF	0.231(.117)	-0.320(.121)	0.327	-0.387
RWLACT	0.139(.112)	0.114(.125)	0.197	0.138
PERCENT	0.265(.098)	-0.151(.105)	0.375	-0.183
CRAFT	-0.171(.102)	0.178(.111)	-0.243	0.216
FIRMSIZE	0.196(.126)	-0.205(.138)	0.277	-0.248

Standard Errors are given in parenthesis. The coefficients for BLSCORE and APPROVE were fixed at 1.000 in the unscaled solution. The Standardized solution fixes the variances of PROCESS and CONTENT at 1.000. The Beta coefficient for the path from PROCESS to CONTENT was estimated as 0.394(.160).

TABLE 3
Maximum Likelihood Estimates from LISREL
Primary Jurisdiction Data (N=78)

ETAs	Unstandardized		Standardized	
	PROCESS	CONTENT	PROCESS	CONTENT
LAMBDA Y COEFFICIENTS				
BLSCORE	1.000(.000)		0.737	
DSSCORE	0.353(.181)		0.260	
DTSCORE	0.785(.195)		0.578	
FDSCORE	0.591(.186)		0.436	
NPSCORE	0.639(.188)		0.471	
APPROVE		1.000(.000)		0.744
NOLOCRAT		-0.427(.185)		-0.318
NATAPVL		0.848(.212)		0.631
NATPROH		0.726(.199)		0.540
GAMMA COEFFICIENTS				
UNCONC	0.080(.112)	0.115(.121)	0.108	0.154
UDENSITY	0.263(.123)	0.288(.125)	0.358	0.387
LOCSIZE	-0.119(.095)	0.028(.103)	-0.162	0.037
NATLMKT	0.008(.095)	0.087(.103)	0.011	0.116
HERF	0.086(.104)	-0.229(.109)	0.117	-0.307
RWLACT	0.182(.133)	0.094(.143)	0.247	0.127
PERCENT	0.253(.098)	0.053(.104)	0.343	0.072
CRAFT	-0.143(.102)	0.034(.110)	-0.194	0.046
FIRMSIZE	0.069(.124)	-0.079(.134)	0.093	-0.106

Standard Errors are given in parenthesis. The coefficients for BLSCORE and
APPROVE were fixed at 1.000 in the unscaled solution. The Standardized
solution fixes the variances of PROCESS and CONTENT at 1.000. The Beta
coefficient from PROCESS to CONTENT was estimated as 0.199(.166).

TABLE 4
OLS Estimates

INDICES	Primary Jurisdiction		Weighted	
	PROCESS	CONTENT	PROCESS	CONTENT
UNSTANDARDIZED REGRESSION COEFFICIENTS				
UNCONC	0.598(0.846)	0.510(0.587)	-0.093(1.177)	-0.024(0.744)
UDENSITY	0.040(0.017)	0.027(0.012)	0.023(0.027)	0.021(0.016)
LOCSIZE	-0.265(0.386)	0.098(0.267)	-0.412(0.414)	0.042(0.281)
NATLMKT	1.026(0.912)	0.187(0.632)	-0.043(1.573)	0.504(1.124)
HERF	-0.218(1.337)	-1.805(0.927)	0.143(1.500)	-2.675(1.059)
RWLACT	2.457(1.757)	2.025(1.218)	1.742(1.689)	1.577(1.139)
PERCENT	2.371(1.105)	0.527(0.766)	4.094(1.584)	-0.616(1.039)
CRAFT	-2.857(1.843)	0.997(1.278)	-1.443(2.571)	3.615(1.671)
FIRMSIZE	0.001(0.001)	-0.001(0.001)	3.194(1.432)	-0.929(0.896)
N	78	78	75	75
R^2	.271	.252	.296	.249
F	2.80	2.55	2.75	2.39
PROB > F	0.007	0.014	0.009	0.021

Standard Errors are given in parenthesis.

APPENDIX

Distributions of Each Union's Membership Across Industries. We

constructed a membership distribution across industries for each national

union by aggregating up from micro-level data on the number of employees

covered under collective bargaining contracts negotiated by affiliates of the

union.   Ideally, one would use the universe of contracts negotiated by

affiliates of each of the national unions in our sample to construct such

distributions.   Unfortunately, it is impossible to identify all contracts in

that universe. We have combined data from two collective bargaining contract

samples to construct the most comprehensive contract data base possible.

Our first sample comprises those contracts on file at the Bureau of

Labor Statistics (BLS) in 1975.   The BLS gathered collective bargaining

agreements for all bargaining units covering at least 1000 workers in all

private sector industries except railroads and airlines.   Their 1975 sample

included approximately 1500 of these contracts.   The BLS also collected other

contracts covering workers in smaller bargaining units, although their

sampling of smaller units was less comprehensive than that of the larger

units. The total number of contracts on file at the BLS in 1975 was 5,979.

The information available about each contract included the number of workers

covered by the contract, the national union with which the contracting local

union was affiliated, the name(s) and locations of the contracting

employer(s), and the contracting employer(s)' Standard Industrial

Classification (SIC) industry code.   Usually, SIC codes were reported at the

4-digit level.

We constructed our second contract sample using information gathered

from the Bureau of National Affairs' (BNA) biweekly surveys, Collective

<u>Bargaining Negotiations and Contracts</u>, for the period 1976 to 1981.[1] The BNA

sample, which included 7,681 contracts of various sizes, contained identifying

information similar to that provided for contracts in the BLS sample. Because

the BNA data base spanned a period of several years, it included multiple

contracts for some bargaining units.   For identifying employee coverage for

each national union, these represent duplicate observations. After

elimination of 3,328 such duplicates, the resulting BNA sample consisted of

4,353 contracts negotiated by unique units.

We matched the BNA and BLS samples by hand using information on the

employer's name, the union, and the location of each of the units. The

matching process identified 1,828 duplicate observations. When we omitted

duplicates, the resulting combined sample included 8,504 distinct private

sector bargaining units. Although the sample does not include all private

sector workers covered by collective bargaining in the U.S., we are confident

that a large percentage of all such workers are represented because there is a

bias in both samples toward inclusion of all large units.

Assignment of Industry Characteristics to Unions. The extent to which a

national union's affiliated employees concentrate in a single industry varies

considerably across unions. While some unions have a narrowly defined

jurisdiction, others represent workers employed across a wide spectrum of

industries. Even among those unions with multiple industry jurisdictions,

there is variation in the degree of similarity among the industries comprising

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[1]We are grateful to John Abowd for providing us with these data. The BNA data
do not include contracts in construction industries, but do cover railroads
and airlines, and therefore fill some gaps in the BLS data. The assignment of
SIC codes and the reporting of the number of workers covered by bargaining
units in the BNA sample was sometimes less than satisfactory. For this
reason, we used the information reported by the BLS for observations that were
duplicated in both samples. For observations that appeared only in the BNA
sample and for which the number of workers covered was not reported, we used
estimates made by Abowd (1989).

the union's jurisdiction. For example, workers represented by the Oil, Chemical, and Atomic Workers' Union (OCAW) concentrate in a few industries that are similar in many respects. In contrast, the Teamsters (IBT) represent workers in just about every industry imaginable.[2] This type of variation among national unions in the scope of their jurisdictions and in the diversity of the industries comprising a union's jurisdiction raises a question about the manner in which industry characteristics influence choice of governance structure. In other words, do unions choose the governance structure that best facilitates accomplishing the goals of its largest constituent group (i.e., those affiliated employees who work in the industry with the largest concentration of the union's members) or that which best facilitates accomplishing the goals of the "average" affiliated employee? This, in turn, raises this question: Should explanatory variables measuring industry characteristics be defined based on the national union's primary jurisdiction or as the average over all the industries comprised in the national union's jurisdiction? The data described in the previous section permitted us to experiment with both methods of defining variables measuring industry characteristics to each union.

Our first method involved identifying a primary industry jurisdiction for each union and then assigning to that union the values that the industry level explanatory variables take on for that primary jurisdiction. This method assumes that the union will choose a structure that most efficiently accomplishs the goals of the workers in the industry with the greatest concentration of its constituents (even though the union may represent workers in several industries, who therefore may have conflicting interests regarding the optimal choice of governance structure).

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[2]This type of union is commonly called a *general jurisdiction* union.

To identify a primary industry jurisdiction for each union, we used the data from the combined BLS and BNA contract sample to construct a relative frequency distribution of employees covered by each union's collective bargaining contracts across industries. Based upon that distribution, we identified the SIC industry in which the highest concentration (i.e., the highest percentage) of employees covered by each union's contracts were employed. That industry was designated as the primary jurisdiction for that union. For example, SIC 3011, the Tires and Inner Tubes Manufacturing industry, was designated as the primary jurisdiction industry for the Rubber Workers (URW) because an estimated 72% of the employees covered by contracts negotiated by affiliates of the URW are employed in that industry. We report our primary jurisdiction assignments for each of the 83 national unions in our sample in the appendix table.

INSERT APPENDIX TABLE ABOUT HERE.

Our second method assumes that each national union will choose a governance structure that best facilitates accomplishing the goals of the "average" affiliated employee. We use the relative frequency distribution of employees covered by each union's collective bargaining contracts across industries to compute a weighted average of each industry level explanatory variable for each union, using the percent of the union's affiliated employees who work in the industry as weights.

Primary Jurisdiction Assignments for International Unions

UNION NAME	SIC CODE	INDUSTRY NAME
Airline Pilots (ALPA)	4500	TRANSPORTATION BY AIR
Allied Industrial Workers (AIW)	3714	MOTOR VEHICLE PARTS & ACCESSORIES
Aluminum Workers (ABGW)	3353	ALUMINUM SHEET, PLATE & FOIL
Asbestos Workers (HFI)	1796	INSTALLING BUILDING EQUIPMENT, NEC.
Auto Workers (UAW)	3711	MOTOR VEHICLES
Bakery Workers (BCTW)	2051	BREAD CAKE & RELATED PRODUCTS
Boilermakers (BBF)	1621	HEAVY CONSTRUCTION, NEC.
Boot & Shoe Workers (BSW)	3141	SHOES, EXCEPT RUBBER
Brick & Clay Workers (UBCW)	3251	BRICK & STRUCTURAL CLAY TILE
Bricklayers (BAC)	1740	MASONRY, STONEWORK & PLASTERING
Broadcast Employees (NABET)	4830	RADIO & TELEVISION BROADCASTING
Carpenters (CJA)	1511	GENERAL BUILDING CONTRACTORS
Cement Workers (CLGW)	3241	CEMENT, HYDRAULIC
Chemical Workers (ICW)	2800	CHEMICALS & ALLIED PRODUCTS
Clothing Workers (ACTWU)	2311	MEN'S & BOYS' SUITS & COATS
Communication Workers (CWA)	4811	TELEPHONE COMMUNICATION
Coopers (CIU)	2445	COOPERAGE
Distillery Workers (DWW)	2085	DISTILLED LIQUOR, EXCEPT BRANDY
Distributive Workers (DWA)	2300	APPAREL
Electrical Workers (IBEW)	4811	TELEPHONE COMMUNICATION
Electrical Workers (IUE)	3629	ELECTRICAL INDUSTRIAL APPARATUS, NEC
Electrical Workers (UE)	3629	ELECTRICAL INDUSTRIAL APPARATUS, NEC
Elevator Contractors (IUEC)	1796	INSTALLING BUILDING EQUIPMENT, NEC.
Firemen & Oilers (IBFO)	4011	RAILROADS, LINEHAUL OPERATING
Flint Glass Workers (AFGW)	3229	PRESSED & BLOWN GLASS, NEC.
Furniture Workers (UFW)	2510	HOUSEHOLD FURNITURE
Garment Workers (UG)	2321	MEN'S & BOYS' SHIRTS & NIGHTWEAR
Glass Bottle Blowers (GPPAW)	3231	PRODUCTS OF PURCHASED GLASS
Glass & Ceramic Workers	3211	FLAT GLASS
Graphic Arts Union (GCIU)	2750	COMMERCIAL PRINTING
Grain Millers (AFG)	2041	FLOUR & OTHER GRAIN PRODUCTS
Hatters (HCMW)	2352	HATS & CAPS, EXCEPT MILLINERY
Hotel & Restaurant Employees (HER)	5810	EATING & DRINKING PLACES
Insurance Workers (IWIU)	6312	STOCK LIFE INSURANCE COMPANIES
Jewelry Workers (JWU)	3911	JEWELRY, PRECIOUS METAL
Laborers (LIUNA)	1511	GENERAL BUILDING CONTRACTORS
Ladies Garment Workers (ILGWU)	2335	WOMEN'S & MISSES' DRESSES
Laundry & Dry Cleaning Workers (LDC)	7210	LAUNDRY, CLEANING & GARMENT SERVICES
Leather, Plastic & Novelty Workers (LGPN)	3171	WOMEN'S HANDBAGS & PURSES
Leather Workers (LWU)	3111	LEATHER TANNING & FINISHING
Longshore Association (IL)	4463	MARINE CARGO HANDLING
Longshore & Warehouse Workers (ILWU)	4463	MARINE CARGO HANDLING
Machinists (IAM)	3721	AIRCRAFT
Maintenance of Way Employees (BMWE)	4011	RAILROADS, LINEHAUL OPERATING

Marble, Slate, & Stone Polishers (TMT)	1740	MASONRY, STONEWORK & PLASTERING
Marine Engineers (MEB)	4411	DEEP SEA FOREIGN TRANSPORTATION
Marine & Shipbuilding Workers (IUMS)	3731	SHIP BUILDING & REPAIRING
Masters, Mates & Pilots (MMP)	4411	DEEP SEA FOREIGN TRANSPORTATION
Meat Cutters (MCBW)	5411	GROCERY STORES
Metal Polishers (MPBP)	3599	MISC. MACHINERY, EXCEPT ELECTRICAL
Mine Workers (UM)	1211	BITUMINOUS COAL MINING
Molders (IMAW)	3321	GRAY IRON FOUNDRIES
Musicians (AFM)	7920	PRODUCERS, ORCHESTRAS & ENTERTAINERS
Newspaper Guild (TNG)	2711	NEWSPAPERS
Office & Professional Employees (OPEIU)	6312	STOCK LIFE INSURANCE COMPANIES
Oil, Atomic & Chemical Workers (OCAW)	2911	PETROLEUM REFINING
Painters (PAT)	1721	PAINTING, PAPER HANGING & DEC'ING
Paper Workers (UPIU)	2600	PAPER & ALLIED PRODUCTS
Plant Guards (PG)	3710	MOTOR VEHICLES & EQUIPMENT
Plumbers (PPF)	1711	PLUMBING, HEATING & AIR-CONDITIONING
Potters (IBPAW)	3263	FINE EARTHENWARE FOOD UTENSILS
Printing & Graphics (PGCU)	2751	COMMERCIAL PRINTING, EXC. LITHO.
Professional & Technical Engineers (PT)	3600	ELECTRIC & ELECTRONIC EQUIPMENT
Railroad Signalmen (BRS)	4011	RAILROADS, LINE-HAUL OPERATING
Railway Carmen (BRC)	4011	RAILROADS, LINEHAUL OPERATING
Railway Clerks (BRA)	4011	RAILROADS, LINE-HAUL OPERATING
Retail Clerks (UFC)	5411	GROCERY STORES
Roofers (RWA)	1761	ROOFING & SHEET METAL WORK
Rubber Workers (URW)	3011	TIRES & INNER TUBES
Seafarers (SIUNA)	4411	DEEP SEA FOREIGN TRANSPORTATION
Services Workers (SEIU)	8060	HOSPITALS
Sheet Metal Workers (SMW)	1711	PLUMBING, HEATING & AIR CONDITIONING
Shoe Workers (USW)	3143	MEN'S FOOTWEAR, EXCEPT ATHLETIC
Stage Workers (IATS)	7810	MOTION PICTURE PRODUCTION & SERVICES
Steel Workers (USA)	3312	BLAST FURNACES & STEEL MILLS
Stove Workers (SFAAW)	3433	HEATING EQUIPMENT, EXCEPT ELECTRICAL
Teamsters (IBT)	4210	TRUCKING, LOCAL & LONG DISTANCE
Telegraphers (UT)	4821	TELEGRAPH COMMUNICATION
Textile Workers (UTWA)	2211	WEAVING MILLS, COTTON
Tobacco Workers (TWIU)	2111	CIGARETTES
Toy Workers (NPW)	3942	DOLLS
Train Dispatchers (TD)	4011	RAILROADS, LINE-HAUL OPERATING
Transit Workers (ATU)	4100	LOCAL & INTERURBAN TRANSIT
Typographical Union (ITU)	2711	NEWSPAPERS
Upholsterers (UIU)	2512	UPHOLSTERED HOUSEHOLD FURNITURE
Utility Workers (UW)	4930	COMBINATION UTILITY SERVICES
Western Pulp & Paper Workers (WPP)	2611	PULP MILLS
Woodworkers (IWA)	2421	SAWMILLS & PLANING MILLS, GENERAL