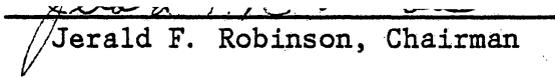# Determinants of Total Bargaining Outcomes in the Open-Shop Environment
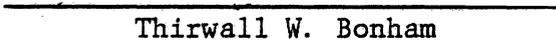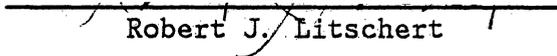
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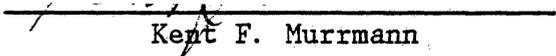Fabius Prince O'Brien

Dissertation submitted to the Faculty of the

Virginia Polytechnic Institute and State University

in partial fulfillment of the requirements for the degree of

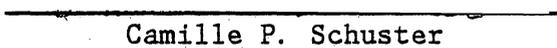Doctor of Philosophy

in

General Business

APPROVED.

Jerald F. Robinson, Chairman

Thirwall W. Bonham

Robert J. Litschert

Kent F. Murrmann

Camille P. Schuster

August, 1986

Blacksburg, Virginia

Determinants of Total Bargaining Outcomes in the Open-Shop Environment

by

Fabius Prince O'Brien

Jerald F. Robinson, Chairman

General Business

(ABSTRACT)

Today, labor union membership has dropped to its lowest level in over 40 years. Attempts to boost aggregate union membership through large scale organizing drives have largely failed. This has placed a great deal of pressure on unions to provide services to existing union members. This would seem to be especially true for labor unions operating in right-to-work states where union members can simply quit the union if they are not satisfied with the union's efforts. Accordingly, this project sought to explain the extent to which local unions have been successful in achieving desirable bargaining outcomes for their members through the exercise of bargaining power.

The purpose of this project was to assess the relationship between sources of plant-level bargaining power and changes in collective bargaining outcomes in an open-shop environment. Sources of power were grouped into those over which the union had relatively greater control (strikes, union strength, and decertification attempts) and those over the employer had relatively greater control (bargaining unit employment, plant closure communications, and degree of labor intensity).

A three-page survey questionnaire was employed to collect plant-level data from Virginia and Iowa representing sources of bargaining power

relevant to specific time periods to help identify whether sources of bargaining power were more or less effective in securing bargaining outcomes favorable to the local union during episodes of union militancy.

Results demonstrate that strike incidence and union strength, two consistent traditional predictors of various bargaining outcomes were ineffective as sources of union bargaining power at least for these samples. Strike duration did lead to greater bargaining outcomes for union members in Iowa. Decertification activity was so low in these samples that meaningful relationships were not possible. Changes in bargaining unit employment, over which the employer has relatively greater influence were directly related to bargaining outcomes in the Iowa sample of plants which did not experience strikes. In Virginia, the threat of a plant closure by an employer during an impasse lead to lower bargaining outcomes for union members as predicted. The degree of labor intensity was unrelated to changes in bargaining outcomes for either state.

When considering all significant relationships (supportive and nonsupportive), strikes demonstrated a   particularly disruptive influence. Research results suggested that future research should consider industrial, union affiliation, and regional differences in plant level studies.

ACKNOWLEDGEMENTS

Many people have been instrumental in helping me complete the Ph. D. Dr. Jerald Robinson has been my chairman throughout my graduate work and has exercised great care and patience in his leadership role. I have learned a great deal from him during our 10 year association and genuinely appreciate his many efforts on my behalf.

Dr. Robert Litchert has been a great stabilizing force in my academic career. He was always willing to listen and to mediate difficult situations. His leadership as a department head and as a member of my doctoral committee have proven him to be objective, fair, and positive in his approach.

Dr. T. W. Bonham has had the greatest influence on my research and on my teaching style. He exposed me to a new world in B. Ad. 5310, inspired me to think and to enjoy learning, and to want this for others. No less important is his contribution as a doctoral committee member. His suggestions markedly improved the quality of my work.

Dr. Camille Schuster proved to be an important pivotal person in my career. Her willingness to serve as a doctoral committee member on very short notice and to devote her energies to improving this work made a difficult transition for me much less painful. Dr. Schuster's professional standards and attention to detail have had a great impact on the quality of my work. I am grateful for her considerable contribution.

Dr. Kent Murrmann has been a key influence on my career and certainly on my ability to finish this project. Along with Jack, Kent spent many

hours helping convert ideas into a proposal and finally into a completed dissertation. I have tremendous respect for Kent as a man and as a professional. He has provided an excellent example for me to follow in my dealings with students and with colleagues.

My final comments are about the two most important people in my life - my mother and my daughter, Although a number of years separates them, they are much alike. Without their caring and undaunting encouragement, I would never have completed the doctorate. I can never repay the joy they have given me.

DEDICATION

In June of 1985 closely following the proposal defense for this dissertation, Jack Hoover passed away. Jack played the most important role in the development of this project. He believed in it and he believed in me. Without his friendship and support I would probably not have finished this work.

Like many others, I deeply regret that Jack is not here to share in my joy. This dissertation is dedicated to this very fine man. The completion of this work is a triumph for Jack, as well.

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INTRODUCTION

Overview of the Topic

The history of the American labor movement has been a portrait of
change and adaptation as labor unions have weathered public resistance,
changes in demographics, changes in labor markets and technology, and
periodic fluctuations in the economy. The record of labor union growth
and stability has been conditioned by specific social legislation enacted
to accommodate a smooth transition of unions into the mainstream of
American society.

During the period before the 1930's, labor unions and collective
bargaining represented only a small percentage of the workforce. The
1930's and 1940's were characterized by rapid growth in unionization.
The National Labor Relations Act (NLRA) of 1935 sparked this spurt of
growth as it virtually institutionalized trade unions by granting legal
status to unions and collective bargaining.[1] The rapid growth of
unionization was masked by the cooperative spirit between labor and man-
agement during the World War II years. In 1946 when the war ended, the
impact of union strength was felt through a wave of strikes affecting
every major industry. The post-war flow of consumer goods which Americans

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[1] U. S., July 5, 1935, c. 372, 49 STAT. 449.

had been awaiting, was disrupted by the intensified union strike activity.

The Labor Management Relations Act (LMRA) of 1947 was a direct response

to the threat which the American public felt to post-World War II pros-

perity.[2] The LMRA acted to restore balance in labor-managment relations

by providing controls on labor unions and reducing alleged abuses of power

by unions.

By the mid-1950's, the union movement was characterized by greater

stability. Union membership, as a proportion of the workforce, began

declining after the mid-1950's; and "union leaders turned more toward

day-to-day bargaining relationships and the working out of modus vevendi

with already organized employers."[3] As labor-management relations "ma-

tured" in the U.S., characteristics of collective bargaining began to

suggest stability and long-term relations between employers and unions.

For example, multi-year agreements, cost-of-living escalator clauses and

elaborate fringe benefit packages evolved and became fairly commonplace

in collective bargaining agreements.[4]

The Labor Management Reporting and Disclosure Act of 1959 (LMRDA)

dealt not only with conflict between labor and management, but also with

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[2]   U.S., June 23, 1947, c. 120, 61 STAT. 136.

[3]   Daniel J.B. Mitchell, "Collective Bargaining and the Economy," in
       U.S. Industrial Relations, 1950-1980:   A Critical Assessment, eds.
       Jack Stieber, Robert B. McKersie, and D. Quinn Mills (Madison, WI:
       IRRA, 1981), 1.

[4]   Richard A. Lester, As Unions Mature: An Analysis of the Evolution
       of American Unionism, (Princeton, NJ: Princeton University Press,
       1958).

internal union policies and the rights of union members <u>within</u> labor organizations. [5]

The major thrust of the LMRDA was to insure that labor unions represented a majority interest of their members in matters affecting wages, hours, and other conditions of employment through effective collective bargaining and union governance.

There has been a condition of relative stability since enactment of the LMRDA over 25 years ago and the acceptance of collective bargaining as an American institution. Today, in the mid-1980's, however, American labor unions are facing perhaps their greatest challenge.

American Labor Unions in Transition

Unions have experienced serious problems in their attempts to expand their number. Union membership as a percentage of the non-agricultural, civilian labor force has steadily declined from a recent high in 1970 of nearly 26 percent to a record low of 17.9 percent in 1982. [6] (See Table

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[5] U.S., September 14, 1959, 73 STAT. 519.

[6] Statistics for the unionized U.S. labor force were reported by the Department of Labor, Bureau of Labor Statistics (BLS) until September of 1980, terminating with BLS Bulletin 2079 which contained figures through 1978. The Bureau of National Affairs continued reporting relevant labor statistics from files collected by the BLS based upon census data. The statistics reported in Tables 1-5 are based upon the traditional census data and represent the most comprehensive report currently available. A recent document in its first edition reports some information for unions up to 1984, but is based upon a different source of data - union financial records. See Leo Troy and Neil Sheflin, <u>Union Sourcebook: Membership, Structure, Finance, Directory</u> 1st ed. (West Orange, NJ: Industrial Relations Data and Information Services, 1985). Because information from the <u>Union Sourcebook</u> is fragmented and is not directly comparable with the conventional BLS data, it has not been integrated into the tables for

1) The decline in union strength may be attributable to a number of significant conditions.

First, the distribution of employment in the economy is changing. Manufacturing employment, which has been the stronghold of American unionism, has been declining. As Table 2 indicates, between 1964 and its peak year in 1979, employment in manufacturing increased by 22 percent. Between 1979 and 1983 manufacturing employment dropped by approximately 12 percent. Conversely, the service producing industries grew continuously by almost 80 percent between 1964 and 1983 and the government sector grew for that same period by 65 percent, largely at the state and local government levels.

From Table 3, it can been seen that unions made their most impressive gains in the government and nonmanufacturing sectors. About 18.8 percent of nonmanufacturing workers were organized in 1980, up from a 1973 figure of 17.7. About 57.3 percent of all organized workers were in nonmanufacturing in 1980 compared with 49.7 recorded in 1973. The government sector shows a similar trend. In 1980, 33.8 percent of the workers in government were organized, up from 27.8 percent in 1973. Government comprised approximately 9 percent of all organized workers in 1980, an increase of 6.9 percent from that in 1973. Manufacturing shows a different trend. About 32.3 percent of workers in manufacturing were organized in 1980, down from 38.8 percent in 1973. Similarly, approximately 33.7 percent of all organized workers were located in manufacturing in

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this study. It should be noted, however, that the trends in union density are the same.

Table 1. U.S. Labor Organization Membership, 1970-82[1]

(In thousands)

| Year | Membership | Civilian Labor Force[2] | |
		Number	Percent Members
1970....	21,248	82,771	25.7
1971....	21,327	84,382	25.3
1972....	21,657	87,034	24.9
1973....	22,276	89,429	24.9
1974....	22,809	91,949	24.8
1975....	22,361	93,775	23.8
1976....	22,662	96,158	23.6
1977....	22,456	99,009	22.7
1978....	22,757	102,251	22.3
1979....	22,579	104,962	21.5
1980....	22,366	106,940	20.9
1981....	---	---	---
1982....	19,763	110,204	17.9

[1]Includes active members reported by unions, but excludes Canadian members.

[2]Revised from "Total Labor Force" classification in Table 2 of the 1982-83 edition of the directory.

--- = Data not available.

Source: Gilford, ed., Directory of U.S. Labor Organizations, 1984-85 Edition (Washington, DC: The Bureau of National Affairs, 1984), p. 3.

Table 2. Employment by Industry, Selected Years 1964-83

(Non-agricultural payroll, in thousands)

Year	Manufacturing	Non-Manufacturing	Government			
			Total	Federal	State	Local
1964	17,274	37,278	9,596	2,348	1,856	5,392
1965	18,062	38,839	10,074	2,378	1,996	5,700
1966	19,214	40,743	10,784	2,564	2,141	6,080
1967	19,447	42,495	11,391	2,719	2,302	6,371
1968	19,781	44,160	11,839	2,737	2,442	6,660
1969	20,167	46,023	12,195	2,758	2,533	6,904
1970	19,367	47,302	12,554	2,731	2,664	7,158
1971	18,623	48,278	12,881	2,696	2,747	7,437
1972	19,151	50,007	13,334	2,684	2,859	7,790
1973	20,154	51,897	13,732	2,663	2,923	8,146
1974	20,077	53,471	14,170	2,724	3,039	8,407
1975	18,323	54,345	14,686	2,748	3,179	8,758
1976	18,997	56,030	14,871	2,733	3,273	8,865
1977	19,682	58,125	15,127	2,727	3,377	9,023
1978	20,505	61,113	15,672	2,753	3,474	9,446
1979	21,040	63,363	15,947	2,773	3,541	9,633
1980	20,285	64,748	16,241	2,866	3,610	9,765
1981	20,170	65,659	16,031	2,772	3,640	9,619
1982	18,781	65,753	15,837	2,739	3,640	9,458
1983	18,497	66,744	15,851	2,752	3,660	9,439

Source: "Current Labor Statistics," Monthly Labor Review, 107, 9
(September, 1984), p. 61.

Table 3. Organized Employed Wage and Salary Workers by Industry Sector, May 1973-80

(In thousands)

Year	Members in Manufacturing			Members in Nonmanufacturing			Members in Government		
		As a percent of employed wage and salary			As a percent of employed wage and salary			As a percent of employed wage and salary	
	Number	Workers in manufac- turing	Organized workers in all industries	Number	Workers in nonmanufac- turing	Organized workers in all industries	Number	Workers in public adminis- tration	Organized workers in all industries
1973....	7,867	38.8	43.5	8,984	17.7	49.7	1,240	27.8	6.9
1974....	7,820	37.8	42.9	9,119	17.6	50.1	1,279	27.6	7.0
1975....	6,697	36.0	39.9	8,749	16.7	52.1	1,334	28.4	8.0
1976....	6,991	35.6	40.2	9,021	16.6	51.8	1,391	29.1	8.0
1977....	7,159	35.5	37.0	10,578	18.8	54.7	1,598	32.1	8.3
1978....	7,107	34.2	36.4	10,825	18.3	55.4	1,616	32.9	8.3
1979....	7,568	35.4	36.1	11,566	19.1	55.1	1,853	36.0	8.8
1980....	6,771	32.3	33.7	11,512	18.8	57.3	1,812	33.8	9.0

Source: Courtney D. Gifford, Editor, Directory of U.S. Labor Organizations, 1982-83 (Washington, DC: The Bureau of National Affairs, 1982), p. 3.

1980, down from 43.5 percent in 1973. Thus, there appears to be a direct relationship between changes in employment within sectors of the economy and changes in union membership.

Second, and of particular importance to the labor movement, manufacturing operations have migrated to the South and Sunbelt regions of the U.S. from the Midwest and Northeast, a situation which unions refer to as "runaway shops."[7] New manufacturing firms are cropping up in the South and Sunbelt regions, as well. This trend is important because these regions have generally the lowest levels of unionism in the U.S.

Eight of the 10[8] states with the lowest levels of unionism are "right to work" states in which union membership is not required for employees in designated bargaining units (Table 4). Conversely, the states with highest union density are neither in the South nor in the Sunbelt (Table 5). Furthermore, none of these states are covered by "right to work" legislation.

While empirical research tends to dispell the notion that "right to work" environments discourage unionization,[9] laws dealing with the issue

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[7]   Myron Roomkin and Hervey A. Juris, "Unions in the Traditional Sector: The Mid-Life Passage of the Labor Movement," _Proceedings of the Thirty-First Annual Meeting, Industrial Relations Research Association_ (Madison, WI: IRRA, 1978), 213-222.

[8]   The two remaining states not located in right-to-work environments are New Hampshire and South Dakota. Relative to the other non-right-to-work states, neither New Hampshire nor South Dakota have a manufacturing base large enough to attract unions.

[9]   Neil A. Palomba and Catherine A. Palomba, "Right-to-Work Laws: A Suggested Economic Rationale," _Journal of Law and Economics_, 14 (1971), 475-83; William J. Moore, Robert J. Newman, and William Thomas, "Determinants of the Passage of Right-to-Work Laws: An Alternative Interpretation," _Journal of Law and Economics_, 17 (1974),

Table 4. Ten States with Lowest Union Membership as a
          Percentage of Non-Agricultural Employment, 1980.

State	Membership (in thousands)	Total Union Membership as a Percentage of Employees in Non-Agricultural Employment
South Carolina[1]	93	7.8
North Carolina[1]	228	9.6
Texas[1]	669	11.4
Florida[1]	420	11.8
South Dakota	35	14.8
Virginia[1]	318	15.0
Georgia[1]	323	15.1
Oklahoma	174	15.3
Kansas[1]	146	15.4
New Hampshire	61	15.8

[1]Has right-to-work law.

Source: Courtney D. Gifford, editor, Directory of U.S. Labor Organizations,
         1982-83 Edition (Washington, DC: The Bureau of National Affairs,
         1982), p. 68.

Table 5.   Ten States with Highest Union Membership as a
           Percentage of Non-Agricultural Employment, 1980.

State	Membership (in thousands)	Total Union Membership as a Percentage of Employees in Non-Agricultural Employment
New York[1]	2,792	38.8
Michigan[2]	1,289	37.3
Pennsylvania[1]	1,644	34.6
Washington	553	34.4
West Virginia[3]	222	34.4
Alaska	57	33.7
Ohio[2]	1,376	31.3
Illinois[2]	1,487	30.4
Indiana[2]	649	30.4
Montana	82	29.2

[1] Largest Northeastern States

[2] Midwestern States

[3] A border member of Midwestern States

Source: Courtney D. Gifford, editor, Directory of U.S. Labor Organizations,
         1982-83 Edition (Washington, DC: The Bureau of National Affairs,
         1982), p. 68.

do prevent local unions from achieving mandatory full membership and the security that such would provide. Moreover, employers tend to behave as if "right to work" laws do make a difference.[10] While climate, lower energy costs, and lower labor costs enter into the plant location or re-location decision, some employers also include the relatively "union free" environment as a desirable feature of locating in the South or Sunbelt regions.[11] Certainly, right to work states' industial development departments sell their alleged favorable labor climate.

Third, the national economy has been a major short-term cause of the downturn in union growth. The past decade has been characterized as one of "stagflation" in which the U.S. is experiencing high levels of both unemployment and inflation. Traditional governmental policy has not been effective in dealing with stagflation and many business enterprises and their unions have suffered.[12]

197-211; Ronald S. Warren and Robert P. Strauss, "A Mixed Logit Model of the Relationship between Unionization and Right-to-Work Legislation, Journal of Political Economics, 87 (1979), 648-54; Walter J. Wessels, "Economic Effects of Right-to-Work Laws," Journal of Labor Research, 2 (1981), 55-75; and David T. Ellwood and Glen A. Fine, "The Impact of Right-to-Work Laws on Union Organizing," Working Paper No. 116, National Bureau of Economic Research (Cambridge, MA: 1983).

[10] Roger Schmenner, Making Business Location Decisions (Englewood Cliffs, NJ: Prentice-Hall, 1982), 34.

[11] Bruce E. Kaufman, Robert C. Eisenstadt, and Madelyn V. Young, "Union Organizing Success in New Manufacturing Plants in Three Southern States," Proceedings of the 1986 Spring Meeting, Industrial Relations Research Association (Madison, WI: IRRA, 1986), photocopy, 12 pages.

[12] Robert J. Flanagan and Daniel J.B. Mitchell, "Wage Determination and Public Policy," in Industrial Relations Research in the 1970's: Review and Appraisal, eds. Thomas A. Kochan, Daniel J.B. Mitchell, and Lee Dyer (Madison, WI: IRRA, 1980), 77-82.

Fourth, a number of industries and firms have been faced with increased foreign and domestic competition.[13] For example, foreign competitors in Japan, Korea, Singapore, and Formosa have often been able to manufacture goods with "cheap labor" or labor-saving technology, ship them to the U.S., sell them at lower prices and still realize a profit. Domestic competition in the form of deregulation and an upswing in the use of non-union labor have also caused economic disparity for unionized U.S. firms.[14]

Fifth, poor economic growth, deregulation, and heightened competition have led to layoffs, plant closings, bankruptcy or threats of same in many industries, creating a need for retrenchment on the part of labor unions. Unions have responded to this adversity most notably by engaging in "concession bargaining" or giving back to employers many of the things that had been won during previous rounds of contract negotiations.[15] Pay cuts, loss of benefits, altered work rules, and reduced hours of work number among concessions made in order to preserve employment in many companies. One result of the recent round of concession bargaining is

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[13] William E. Fulmer, "Contract Reopening: Issues and Relationships," Proceedings of the Thirty-Fifth Annual Meeting, Industrial Relations Association (Madison, WI: IRRA, 1982), 402.

[14] D. Quinn Mills, "When Employees Make Concessions," Harvard Business Review 61, 3 (May, 1983), 103.

[15] Peter Capelli, "Concession Bargaining and the National Economy," Proceedings of the Thirty-Fifth Annual Meeting, Industrial Relations Research Association (Madison, WI: IRRA, 1982), 370; Daniel J. B. Mitchell, "Recent Union Contract Concessions," Brookings Papers on Economic Activity 1 (1982), 169; and Henry W. Saad, "The BILDISCO Decision - Balancing Political Interests," Employee Relations Law Journal, 10, 2 (Autumn, 1984), 219.

the break down of "pattern bargaining" in industries such as autos, steel,

rubber, aerospace, copper, and farm equipment in which macroeconomic in-

fluences have guided collective bargaining.   Plant-level bargaining has

replaced pattern bargaining in these firms as employers search for situ-

ations which enhance their ability to compete in the product market. [16]

Sixth, partially responsible for the trend of declining union

strength is the increase of decertifications and deauthorization

elections lost by unions in recent years. [17] Moreover, modern managers are

reported to be employing anti-union consultants who claim the ability to

prevent unions where none exist and enhance decertification in unionized

firms.   Empirical evidence suggests that consultants may be effective in

helping firms win National Labor Relations Board (NLRB) certification

elections. [18]

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[16]   Audrey Freedman and William E. Fulmer, "Last Rites for Pattern Bar-
       gaining," Harvard Business Review 60, 2 (March-April, 1982), 30.

[17]   John C. Anderson, Gloria Busman and Charles A. O'Reilly, III, "What
       Factors Influence the Outcomes of Decertification Elections?"
       Monthly Labor Review 102, 11 (November, 1979), 32-36; James B. Dworkin
       and Marian M. Extejt, "Recent Trends in Union Decertification-
       Deauthorization Elections," Proceedings of the Thirty-Second Annual
       Meeting, Industrial Relations Research Association (Madison, WI:
       IRRA, 1979), 233-234; and Ronald L. Seeber and William N. Cooke, "The
       Decline in Union Success in NLRB Representation Elections," Indus-
       trial Relations 22, 1 (Winter, 1983), 34.

[18]   John Lawler, "Labor-Management Consultants in Union Organizing Cam-
       paigns: Do They Make a Difference?" Proceedings of the Thirty-Fourth
       Annual Meeting, Industrial Relations Research Association (Madison,
       WI: IRRA, 1981), 374-380; and Kent F. Murrmann and Andrew A. Porter,
       "Employer Campaign Tactics and NLRB Election Outcomes: Some Prelim-
       inary Evidence," Proceedings of the Thirty-Fifty Annual Meeting, In-
       dustrial Relations Research Association (Madison, WI: IRRA, 1982),
       67-72.

Finally, organized labor has found the political environment of the 1980's unsympathetic and even dangerous. Probably no situation in modern labor history has impacted labor unions as resoundingly as the decertification of the Professional Air Traffic Controllers Organization (PATCO).[19]

The president conveyed his message to organized labor in another important way. In 1981, the president moved forward on a plan to reduce government spending. Directly affected were a number of federal government employees whose jobs were eliminated. As a federal agency involved, the NLRB was unable to secure badly needed positions to handle the burgeoning load of unfair labor practice cases and certification elections.[20]

Moreover, the Federal Mediation and Conciliation Service, that federal agency created to augment labor-management negotiations, lost much of its staff due to budget cuts.[21] Thus, by following the letter of the law, the president has influenced labor-management relations in a manner that has had serious consequences for organized labor.

In summary, union strength has diminished significantly during the past 20 years. A weak and unpredictable economy, deregulation, and increased foreign and domestic competition have led to a survival strategy

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[19] Herbert R. Northrup, "The Rise and Demise of PATCO," Industrial and Labor Relations Review 37, 2 (January, 1984), 167-184.

[20] John S. Irving, Jr., "The Crisis at the NLRB: A Call for Reordering Priorities," Employee Relations Law Journal 7, 1 (Summer, 1981), 47-66.

[21] "Budget Cuts Create Some Difficulties for the Mediation Service," Wall Street Journal CCI, 2 (January 4, 1983), 1.

for unions in the form of concession bargaining and accommodation. Union membership has decreased through decertification elections too. This may be due, in part, to the increased use of management consultants. Furthermore, the political environment has proven to be a formidable adversary in which federal government policies have been employed indirectly to inhibit union growth.

However, of greatest significance for union strength is the changing pattern of employment. Manufacturing has migrated away from the highly industrialized and unionized Midwest and Northeast to the South and Sunbelt regions of the U.S. where union density is lowest. For new manufacturing firms in which a union history does not exist, these regions appear to be preferred. These events have, indeed, presented considerable challenges for labor unions.

Labor Unions' Response to Adversity

In January of 1977, the 95th Congress opened its session with a democratic administration in power, installed in large part due to the support of union leadership. Democrats comprised over a two-thirds majority in both the House of Representatives and the Senate, a proportion that could easily override a presidential veto. Expectations were that Congress and the administration would overwhelmingly embrace the legislative agenda established by organized labor.[22] The Labor Law Reform Act of 1977 embodied labor's proposal for labor law reform.

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[22] John M. Ashbrook, "Labor Law and the 95th Congress," *Labor Law Journal* 28, 7 (July, 1977), 387.

The Labor Law Reform Act (LRA) mandated, among other things: (1) expedited elections through the use of authorization cards; (2) debarment of government contracting for employers who engaged in willful unfair labor practices; (3) common situs picketing of construction sites; and (4) repeal of Section 14(b) of the LMRA which allows each state to decide upon the form of union security it permits.[23] Enactment of the LRA may have created a bounty of advantages for union organizing and union bargaining power. It was defeated by the 95th Congress and no similar labor legislation has surfaced since. Thus, labor organizations have relied upon other means outside the legislative route to overcome adversity.

One successful measure taken by labor organizations to offset dwindling membership has been the merger. As adverse conditions began taking a noticeable toll, unions responded with a record number of mergers. Eighty-six mergers between labor organizations occurred between January, 1979 and June, 1984 - more than in any other similar period since December, 1955 when the AFL-CIO was formed.[24]

While some mergers may occur to settle jurisdictional disputes, most result from a need for a more efficient way to increase membership and financial resources. Most mergers have resulted when a larger labor union has enfranchised a smaller one. For example, the United Retail Workers Union (22,000) merged with the United Food and Commercial Workers Inter-

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[23] Peter G. Nash, "The Labor Reform Act of 1977: A Detailed Analysis," Employee Relations Law Journal 4, 1 (Summer, 1978), 60-72.

[24] Larry T. Adams, "Labor Organization Mergers, 1979-84: Adapting to Change," Monthly Labor Review 107, 9 (September, 1984), 21.

national Union (1,300,000) in November of 1981.[25] The smaller union gained services and expertise through economies of scale associated with organization size, and the larger union gained valuable financial resources and membership necessary to keep the organization viable.

Whereas mergers increase membership by consolidating members of two or more separate unions into one organization, this does not usually affect aggregate union membership. Perhaps the new organization will attract new members in an industry in large enough numbers to outdistance the rate of employment growth. More than likely, distressed unions will be attracted to a consolidation unit, in which case the initial merger may act to slow the pace of diminishing union membership. One clear-cut aspiration among labor organizations is that mergers may allow craft and industrial unions to move across traditional boundaries into the service areas and the public sector where the greatest growth in employment is occurring.[26] As will be seen below, unions have also spent considerable effort on the regional effects of employment growth.

Recognizing the geographical swing in manufacturing and service industries, unions have intensifed their organizing activities in the South. The AFL-CIO amassed considerable support for large-scale organizing drives in this region, first in the Atlanta, Georgia, area in the 1960's and more recently in the Houston, Texas, area.[27] During the more

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[25] Adams, p. 23.

[26] "Labor's New Campaign to Crack the Sunbelt," Business Week (October 19, 1981), 43; and "The Unions Target Plants in Houston," Chemical Week 130 (June 9, 1982), 13.

[27] Kaufman, et al., p. 1.

recent drive, extensive use of public relations, legal and research experts, computerized mailing services, and video tapes of "proud" Southern union members numbered among the fairly sophisticated and expensive techniques used by labor organizers.[28] These efforts appear to have met with some success, particularly in larger industrial organizations. Trevor Bain and Allen Spritzer note that "unions are organizing larger units in the South than in the rest of the nation....the average size of new bargaining units in the South is about 58 percent greater than for the total United States."[29]

During recessionary periods, when jobs are relatively more scarce, employees find union membership less attractive since they tend to fear losing their jobs in the process of organizing. This is especially true in the South and Southwest where there has been a tradition of anti-union sentiment. Accordingly, cut-backs in organizing staffs have occurred, significantly reducing the thrust in organizing activity in the Sunbelt.

Thus, organizing attempts have not kept pace with the growth of manufacturing in the Sunbelt, which may result in a substantial erosion of union bargaining power. During this recessionary period from the mid-1970's through the mid-1980's, when union resources are low and workers are reluctant to share their own resources through dues assess-

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[28] Joann S. Lublin, "Union Organizer Faces Harder Job Than Ever in Recession-Hit South," Wall Street Journal CC, 3 (August 3, 1982), 1 and 22.

[29] Trevor Bain and Allen D. Spritzer, "Private Sector Industrial Relations in the South," Proceedings of the 1981 Spring Meeting, Industrial Relations Research Association (Madison, WI: IRRA, 1981), 539.

ments, it seems unlikely that much progress can be made toward restoring previous levels of aggregate union membership through organizing drives.

Purpose of the Study

Union power has significantly diminished over the past quarter century, particularly in the recent past. The more obvious forms of union power are manifest through (1) successful organizing, (2) collective negotiations that yield favorable outcomes for union members, (3) effective contract administration following negotiations, and, ultimately, (4) the maintenance and growth of aggregate union membership. The record of performance for organized labor in organizing and in maintaining aggregate union membership has not been good. This has placed greater pressure on existing locals to serve the interests of local union members through collective negotiations and contract administration.

To the extent that labor unions can meet these last two objectives well, particularly during a period of economic crisis and environmental change such as occurred recently, the prospects for meeting organizing objectives and maintaining aggregate union membership might improve. Certainly, prospective union members in new manufacturing plants and in the expanding employment sectors will be aware of the success labor unions experience in the traditional manufacturing sector in protecting the interests of existing union members. The research question addressed in this study is the extent to which local union members have been served through collective negotiations.

This study focuses exclusively on negotiations as a source of union power. This source is commonly referred to as union bargaining power.

The purpose of this study was to assess the impact of local union bargaining power on bargaining outcomes.

The past research on bargaining outcomes has concentrated almost exclusively on wages; yet in an extended period of adversity such as labor and management are facing today, the entire range of potential bargaining outcomes is especially important.[30] The local union's bargaining performance, when based solely on wages, tends to underestimate its power to achieve a wide range of outcomes for union members.

The study was conducted in manufacturing plants in an "open shop" environment. The samples were drawn from states in two regions of the United States - Virginia, a southern state and Iowa, a midwestern state, both of which have a "right to work" law mandating the "open shop" for unionized employers. Personnel directors, the custodians of records pertaining to labor-management relations, were the sources for data collecton.

This study contributes to the existing body of knowledge on collective bargaining by:

1. developing a model which incorporates both traditional and non-traditional sources of power affecting collective bargaining outcomes;

2. applying the model at the plant level where the outcomes of collective bargaining are most readily observed;

3. observing changes from one contract period to another in some of the sources of union power; and

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[30] Thomas A. Kochan and Richard N. Block, "An Interindustry Analysis of Bargaining Outcomes: Preliminary Evidence for Two-Digit Industries," Quarterly Journal of Economics 91 (August, 1977), 422.

4. relating both static and dynamic sources to net changes in total bargaining outcomes over the same period.

Need for the Study

Research on union bargaining power and bargaining outcomes has traditionally been conducted in a macro sense in which industry and occupation-level data have been disaggregated to make generalizations about plant-level bargaining relationships.[31] While collecting plant-level data helps overcome problems associated with disaggregation, it also makes possible the identification of sources of bargaining power that are not typically measured. Thus, a fuller and more realistic definition of bargaining power may be constructed. Moreover, it is likely that these variables may be manipulated by either labor or management to effect more desirable bargaining outcomes. It may be possible for both labor and management to make predictions and to impact outcomes by noting trends that occur for certain industries, for plants which experience strikes, and for bargaining units with a particular degree of labor intensity.

The measurement of changes in bargaining outcomes marks a significant departure from research practice in this field. Bargaining outcomes, as spelled out in a negotiated agreement, perhaps more than any other aspect of labor-management relations, define the nature of the relationship between a local union and the employer. This is particularly important in an era of concession bargaining in which the maintenance of current union membership rolls (as a function of employment) is threat-

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[31] Daniel Orr, "The Free Rider and Labor Law - A Symposium: Introduction and Overview," Journal of Labor Research 1, 2 (Fall, 1980), 285-293.

ened. By accounting for the changes made in _all_ bargaining outcomes, not just wages, unions may demonstrate to their constituents the trade-offs they were able to secure in lieu of wage increases. At the same time, management may demonstrate to the chief executive officer the manner in which wage and other monetary item reductions have led to immediate cost savings and the spread of union gains over a longer time horizon.

This study employed an objective rating technique for bargaining outcomes which assigned numerical values to virtually all contract items. In this way, actual changes in contract items may be assessed. Such a method makes it possible to develop a bargaining history which may prove to be a useful performance evaluation tool for the leadership of both labor and management.

The study of changes in bargaining outcomes creates an unforseen advantage for the parties to collective bargaining. Collective bargaining agreements are historical documents which survive changes in leadership for the local union and the employer. In the case of a local union, changes in leadership may result in a loss of continuity and information regarding labor-management relations. The contract comparisons may be used as objective standards by which union leaders form new bargaining strategies. From the employer's standpoint, in which relatively greater information is available, an elaborate data base may be created in which contract costing simulations are possible.

Finally, this study provides an opportunity to evaluate the impact of the union membership (strength) on bargaining outcomes. Despite heated philosophical debate among practitioners, special interest groups, and academicians, the actual impact of union strength on bargaining outcomes

has not been previously assessed. Unions claim that the "open shop,"
which does not require members of a designated bargaining unit to join
the local union, erodes their bargaining power base. Ostensibly, the
absence of 100 percent union membership in the bargaining unit creates
dissension among bargaining unit members, reduces dues income, and allows
non-union members to cross picket lines during strikes without penalty.
Without the full support of all bargaining unit members, local union of-
ficials feel that they are at a disadvantage in their bargaining re-
lationship with the employer. The emphasis which organized labor placed
on the repeal of Section 14(b) of the LMRA when drafting the Labor Law
Reform Act of 1977 attests to the seriousness of this topic for them.

If union strength is, indeed, a determinant of bargaining outcomes,
local unions may want to devote more time and resources to securing full
union membership. Management, on the other hand, would have a vested
interest in preventing full membership. In the event that union strength
is not a determinant of bargaining outcomes, this study may serve as
preliminary evidence that the necessity for full union membership is
probably a myth. This has been the contention of previous empirical re-
search on the topic, all of which used macro-level observations.[32]

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[32] Daniel Gilbert, "A Statistical Analysis of the Right-to-Work Con-
flict," Industrial and Labor Relations Review 19, 4 (July, 1966),
533-537; Marcus Hart Sandver, "South-Nonsouth Differentials in Na-
tional Labor Relations Board Certification Election Outcomes," Jour-
nal of Labor Research III, 1 (Winter, 1982), 13-30; Keith Lumsden and
Craig Petersen, "The Effect of Right-to-Work Laws on Unionization in
the United States," Journal of Political Economy 83, 6 (December,
1975), 1237-1248; and Ronald S. Warren, Jr. and Robert P. Strauss,
"A Mixed Logit Model of the Relationship between Unionization and
Right-to-Work Legislation," Journal of Political Economy 87, 3 (June,
1979), 648-655.

Organization of the Study

In the following pages, the details of the study are outlined and subsumed under chapter headings. Chapter Two represents the literature review in which concepts relevant to this study are systematically related to changes in bargaining outcomes. In Chapter Three, a model is developed, depicting sources of bargaining power relevant to collective bargaining outcomes. Research hypotheses are specified here. The research methodology is detailed, as well. Chapter Four reports the results of data analysis in relationship with the research hypotheses. Chapter Five provides a discussion of the empirical results, conclusions drawn from the study, and implications of the results for future research.

LITERATURE REVIEW

Introduction

This chapter has three major objectives. First, bargaining out-
comes, the dependent measure in this study, are defined and discussed as
they relate to bargaining power between labor and the employer. Second,
empirical research is reviewed which depicts traditional sources of bar-
gaining power as determinants of both financial and non-financial bar-
gaining outcomes. Finally, concession bargaining is reviewed because of
its pervasiveness during the period covered by this study and its poten-
tial for altering bargaining power relationships.

Outcomes of Collective Bargaining

American workers have historically been motivated to join unions out
of a perceived need to improve their wages, fringe benefits, and working
conditions and to increase their ability or power to bring about changes
in other important terms and conditions of employment. Labor unions rely
upon the process of collective bargaining to help achieve these objec-
tives. Collective bargaining is an industrial relations system through
which labor and the employer determine the terms and conditions of em-
ployment on a bilateral basis.

In practice, collective bargaining is comprised of two basic ele-
ments - contract negotiations and contract administration. During con-
tract negotiations the rights of labor and management are fashioned,
agreed upon, and codified in the contract. During contract administration

and enforcement, the language of the labor agreement is given specific meaning in its day-to-day application.

The work-related needs of employees manifest themselves as goals which the union leadership takes to the negotiating table in the initial and subsequent contract negotiations with the employer. The nature, magnitude, and scope of bargaining goals may change over the life of the labor-management relationship, with initial bargaining efforts often geared toward improving wages whereas later efforts may center more on improving work rules, safety and health provisions, and more time off with pay.[33] Bargaining goals may also change during individual negotiation episodes. This may occur to such an extent that bargaining goals become meaningless as criteria for bargaining effectiveness. The _outcomes_ of negotiations between labor and the employer may serve as more objective measures of bargaining effectiveness.

Bargaining outcomes, which may be psychological, social, economic, and political in nature, are limited in the research literature largely to economic topics, as economists have dominated the area of inquiry. Economists have concerned themselves almost exclusively with wages. Thus, bargaining outcomes have been interpreted as physical evidence (wages) of the degree to which the union gained or lost items on the bargaining agenda through negotiations with the employer. Bargaining outcomes in this study include _all_ items found in collective bargaining agreements - physical evidence of the wage and non-wage outcomes of col-

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[33] Thomas A. Kochan, "How American Workers View Labor Unions," _Monthly Labor Review._ 102, 5 (April, 1979), 23-31.

lective negotiations. Bargaining power constitutes a major thrust to-
wards explaining the outcomes of collective bargaining in the United
States.[34]

Labor-management relations in this country are characterized by the
adversarial principle in which conflict between the parties acts to
highlight the fundamental relationship between bargaining power and bar-
gaining outcomes.[35] Kochan notes that, by necessity, any model which at-
tempts to explain wages and other bargaining outcomes under collective
bargaining must rely heavily on some notion of bargaining power.

> Bargaining takes place between two parties with at least partially
> conflicting goals. Thus, power becomes the motivational force that
> induces the parties to compromise their goals in order to achieve
> an agreement. The actions of unions and employers can often only be
> understood by recognizing that the parties are engaged in long-term
> relationships in which power is a necessary condition for achieving
> one's goals.[36]

Following the adversarial principle, unions attempt to build power-
ful bargaining organizations to oppose the often unilateral decisions by
the employer which affect union members. Also, unions insulate union
members from competitive market forces. Likewise, the employer attempts
to build powerful bargaining organizations to protect its economic in-
terests and to limit erosion of its autonomy.

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[34] David Lewin and Peter Feuille, "Behavioral Research in Industrial
Relations," Industrial and Labor Relations Review, 36, 3 (April,
1983), 355.

[35] Jack Barbash, "The American Ideology of Industrial Relations," Pro-
ceedings of the 1979 Annual Spring Meeting, Industrial Relations Re-
search Association (Madison, WI: IRRA, 1979), 453.

[36] Thomas A. Kochan, Collective Bargaining and Industrial Relations
(Homewood, IL: Richard D. Irwin, Inc., 1980), 309.

Although a ubiquitous concept in collective bargaining, bargaining power has suffered from a lack of agreement among researchers as to its meaning. While researchers have tended to portray bargaining power as a micro concept experienced at the bargaining unit level, a broad spectrum of approaches was studied in attempting to clarify the concept. John Dunlop, for example, provided a simple listing of factors presumed to determine bargaining power.[37] Several others offered sophisticated mathematical models of bargaining behavior based upon refined utility functions of both labor and management negotiators.[38] C. E. Lindblom believed that the entire concept of power was meaningless since it embraced within it all the forces that entered into the process of wage determination.[39]

A more practical approach to the problem was developed by Neil Chamberlain, who defined bargaining power in terms of the costs to each party of agreement relative to the costs of disagreement to each of them. More specifically, the greater the cost to the employer of disagreeing (sustaining a strike) as opposed to the cost of agreeing (granting the union's demands), the greater the union's bargaining power. Conversely, the greater the costs to the union of disagreeing (calling a strike) as

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[37] John T. Dunlop, Wage Determination Under Trade Unions (New York: Augustus M. Kelly Publishers, 1966), 77-78.

[38] Jan Pen, "A General Theory of Bargaining," American Economic Review, 4, 1 (March, 1952), 24-42; Bevars DePre Mabry, "The Pure Theory of Bargaining," Industrial and Labor Relations Review, 18, 4 (July, 1966), 479-502; and Pao Lun Cheng, "Wage Negotiation and Bargaining Power," Industrial and Labor Relations Review, 21, 2 (January, 1968), 163-182.

[39] C. E. Lindblom, "Bargaining Power in Price and Wage Determination," Quarterly Journal of Economics, 62 (May, 1948), 396-417.

opposed to the costs of agreeing (accepting the company's offer), the greater the firm's bargaining power. These relationships were expressed by the following ratios:

a. Union's Bargaining Power =

$$\frac{\text{Firm's cost of disagreeing with union terms}}{\text{Firm's cost of agreeing with union terms}}$$

b. Firm's Bargaining Power =

$$\frac{\text{Union's cost of disagreeing with firm's terms}}{\text{Union's cost of agreeing with firm's terms}}$$

If, for either party, the estimated value of this relationship was greater than one, it would prefer to agree; if less than one, it would prefer to disagree. Just before and during negotiations, demands are formulated and concessions made on the basis of each party's estimates of its own and of its opponent's power functions. As concessions are made, the costs of agreement are gradually reduced to the point where the bargaining power of one or both parties rises above one, and an agreement is reached.[40]

Although this formulation was considerably less elegant than those developed by Penn, Cheng and others, it captured the basic exchange process of collective bargaining from which bargaining outcomes are forged. Like the other models of bargaining power, Chamberlain's model described bargaining power as a bargaining unit phenomena, a concept germane to the thesis of research undertaken here. Thus, Chamberlain's definition of bargaining power was employed in this study.

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[40] Neil W. Chamberlain, <u>Collective Bargaining,</u> 2nd Ed. (New York: McGraw-Hill, Inc., 1965), 170-189.

The next section outlines the major variables which have been used
as proxies for bargaining power to explain various financial bargaining
outcomes in the private sector.

Financial Bargaining Outcomes

The area of wage determination has dominated economic inquiry into
the effects of labor unions on bargaining outcomes.[41] Recently, fringe
benefits have also received attention by economists.[42] Thus, wage and
fringe benefit determination comprise this section dealing with the fi-
nancial, quantifiable outcomes of bargaining which enjoyed so much re-
search attention before the mid-1980's.

This section was divided into three parts. The first is that of
union/non-union wage differentials. The second is the determination of
wage levels. The third section addresses the relatively new area of
fringe benefit determination. A summary of all three areas will be pro-
vided at the end of the section for Financial Bargaining Outcomes.

Union/Nonunion Wage Differentials

A fundamental question in wage determination is whether union mem-
bers, on average, earn more than nonunion workers. Clearly, a major goal
of unionism is the improvement of union member wages. A wealth of lit-

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[41] Daniel J. B. Mitchell, "Collective Bargaining and Wage Determination
in the 1970's," Proceedings of the Thirty-Third Annual Meeting of the
Industrial Relations Research Association, 1980 (Madison, WI: IRRA,
1980), 135.

[42] Richard B. Freeman and James L. Medoff, "The Impact of Collective
Bargaining: Illusion or Reality?" in U.S. Industrial Relations,
1950-1980, A Critical Appraisal, eds. Jack Stieber, Robert B.
McKersie and D. Quinn Mills (Madison, WI: IRRA, 1981), 53-54.

erature suggests that, indeed, union members earn more, on average, than comparable nonunion members.

A study conducted by the Census Bureau in 1966 reported that full-time wage and salary workers in the private sector had a median annual income approximately 20 percent more than full-time wage and salary workers in nonunion firms.[43] These generalizations were supported by a 1970 study concerning both public and private sector workers although the differentials were not as pronounced.[44] A 1977 study employing average (mean) usual weekly earnings reported wider differentials than the 1970 study; however, changes in coverage and definitions of terms made trend analysis impossible.[45] The 1970 and 1977 studies showed relatively larger earnings premium differentials for blue-collar and service workers when both groups were compared with white-collar workers.

Although a wage differential with an upper limit of 20 percent is impressive, other characteristics may have had an important impact on wage differentials which were not reflected in these descriptive statistics. Moreover, the Department of Labor studies did not indicate whether unions,

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[43] U. S. Department of Labor, Bureau of the Census, Labor Union Membership in 1966, Series P-20, No. 216 (Washington, DC: U. S.   Government Printing Office, 1971), Table 9.

[44] U. S. Department of Labor, Bureau of Labor Statistics, Selected Earnings and Demographic Characteristics of Union Members, 1970, Report 417 (Washington, DC: U. S. Government Printing Office, 1972), Table 6.

[45] U. S. Department of Labor, Bureau of Labor Statistics, Earnings and Other Characteristics of Organized Workers, May, 1977, Report 556 (Washington, DC: U. S. Government Printing Office, 1979), Table 11.

in fact, caused the noticeable wage differentials. Following is a review of research which addressed these concerns.

The study which provided the stimulus for much of the recent research on union/nonunion wage differentials was done by H. Greg Lewis in 1963.[46] Lewis developed the methodology for the topic which has served as the basis for subsequent studies. He dissected and extended the major studies done prior to his own work and derived new sets of estimates for union/nonunion wage differentials.

The estimated value of B (beta), derived through regression analysis, provided an indication of the effect of unionism on relative wages. The proportionate wage advantage due to union membership (wage differential), other things equal, was WD = exp (B) - 1. The problem was to obtain the appropriate set of adjustment variables so that the estimator of B was unbiased.[47]

Early studies, including Lewis's, did not allow for much adjustment, but improvements in computer technology and the use of micro data sets gave rise to more carefully controlled variations in the X vector elements.[48] The X coefficient served as the basis for the inclusion of the various explanatory variables which differentiate one study from another of those conducted subsequent to Lewis's 1963 work.

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[46] H. Greg Lewis, Unionism and Relative Wages in the United States (Chicago: The University of Chicago Press, 1963).

[47] Lewis, 28-29.

[48] George E. Johnson, "Economic Analysis of Trade Unions," American Economic Review, LXV, 2 (May, 1975), 24.

On the basis of both his and a large number of other studies, Lewis estimated that the average relative wage effect of unionism, all else equal, was plus 15 to 25 percent during the 1920's from, 25 to 40 percent during the early 1930's, dropped to from 10 to 20 percent by the late 1930's and to 0 to 5 percent during and immediately following World War II. During the 1950's, it rose again between 10 and 15 percent, the range which has been generally the basis for comparision in more contemporary research on union/nonunion wage differentials.[49]

Building on the work of Lewis, Leonard W. Weiss conducted a study in 1966 employing data from the 1960 Census on individual (microeconomic) craftsmen and operatives.[50] Weiss used the conventional measure of "extent of union membership" - the percentage of employees in establishments where more than half of the production workers are covered by collective bargaining agreements. Weiss included a concentration ratio as well as an interaction term for concentration x extent of union membership. Concentration refers to the degree of monopoly power that a firm enjoys in a product market. Workers in concentrated industries secure higher wages as a result of the larger profits to be shared or the greater ability of firms to pass on cost increases to consumers.

The results indicated that not only did highly concentrated and highly unionized industries pay higher wages, but that concentration and extent of union membership reinforced one another. For example, in highly

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[49] Lewis, Unionism and Relative Wages....,193-222.

[50] Leonard W. Weiss, "Concentration and Labor Earning," American Economic Review. LVI, 1 (March, 1966), 96-117.

concentrated industries, a given level of unionization yielded higher wages than it did in less concentrated industries. Weiss's estimate of craftsmen and operatives was a differential of approximately 30 percent. Weiss then made adjustments for industry characteristics (i.e., increase in industry employment, durable v. nondurable good industries, and establishment size), overall labor force characteristics (sex, skill, region, urban v. nonurban residence) and personal characteristics reflecting individual level data (i.e. age, education, mobility, etc.). Weiss noted that the effects of industry characteristics declined considerably when personal characteristics were added to the prediction equation. The relationship between unionism and earnings declined in the presence of personal characteristics. The full regression model explained approximately 34 percent of variation in the dependent variable.

Weiss estimated that the relative effect of unionism for craftsmen was 8 to 15 percent, whereas the relative effect for operatives was from 6 to 8 percent. Weiss also noted that firms "in concentrated industries do pay their employees more, but that they get higher 'quality' labor in the bargain."[51] Weiss assumed that since unionized firms tended to pay more for jobs than comparable nonunion firms, individuals with the best qualifications were attracted to unionized firms. He reasoned that from a pool of highly qualified individuals, unionized firms selected those with the most experience, highest educational attainment, etc.

Frank Stafford challenged Weiss's work in a study using data from the 1966 Survey of Consumer Finances, a national sample of families

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[51] Weiss, 108.

gathered by the Survey Research Center of the University of Michigan.[52]

Stafford sought to explain the magnitude of the effect of unions on annual earnings of members after accounting for differences between members and nonmembers in personal characteristics such as age, education, occupation and the like. Unlike the experience of Weiss, Stafford found that the introduction of personal characteristics _increased_ the effect of unionism. The relative effect of unions on annual earnings was from 10 to 16 percent for selected occupations, consistent with Lewis's estimate of from 10 to 15 percent in the late 1950's.[53] For certain occupations such as operatives and craftsmen, the introduction of personal characteristics created an even greater differential than Weiss found. For example, the estimated wage differential was 24 percent for craftsmen and 26 percent for operatives, about two times Weiss's estimate for the former and over three times Weiss's estimate for the latter. The differences in outcomes may be accounted for by the level of analysis in each study and its effect on defining explanatory variables. Stafford's full regression model explained approximately 34 percent of variation in annual earnings.

Adrian Throop used aggregate industry data and regressed hourly earnings on unionism, a skill index, and average city size of the employees in each industry.[54] The standard measure for "unionism" was used.

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[52] Frank P. Stafford, "Concentration and Labor Earnings: Comment," _American Economic Review_, LVIII, 1 (March, 1968), 174-180.

[53] Lewis, _Unionism and Relative Wages_...., 193.

[54] Adrian W. Throop, "The Union-Nonunion Wage Differential and Cost Push Inflation," _American Economic Review_, LVII, 1 (March, 1968), 79-99.

Throop demonstrated that the effect of unionization on hourly earnings shifted upward between 1950 and 1960 for a selected group of industries, due, Throop claimed, to the increase in the degree of unionization that occurred during this period. His estimates of the union/nonunion wage differential for 1950 was 25 percent and for 1960 was 30 percent, both exceeding the estimates of Lewis. Unlike Weiss, Throop excluded a concentration ratio which might account for the higher estimate since extent of unionism and degree of concentration tended to be correlated. Throop did not provide evidence of a coefficient of determination for his study.

Sherwin Rosen employed data obtained largely from the 1958 U.S. Census of Manufacturers and the 1967 U.S. Census of Population for 59 industries.[55] The union coverage variable was defined by the conventional measure.

Rosen regressed average hourly earnings of production workers on the union coverage variable, a concentration ratio term, and an interaction term of both, while controlling for personal characteristics. An occupational variable measuring proportion of skilled craftsmen and kindred workers was included to capture residual quality differences not picked up in other control variables.

The estimates of wage differentials ranged from 10 to 35 percent. Unionism appeared to benefit males and older workers more than females and younger workers relative to nonunion counterparts. Again, industry concentration demonstrated a significant, positive relationship with

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[55] Sherwin Rosen, "Trade Union Power, Threat Effects and the Extent of Organization," Review of Economic Studies, XXXVI, 2 (April, 1969), 185-196.

wages, consistent with Lewis[56] and Weiss.[57] Rosen's best prediction equation estimated approximately 95 percent of variation in hourly earnings for production workers.

George Johnson and Kenwood Youmans estimated the impact of unionism on the relative wages of blue-collar workers for different ages and levels of educational attainment.[58] Johnson and Youmans tested their assumptions on 1,950 individuals from data taken from the 1965 and 1966 Survey of Consumer Finances, similar to the sample of Stafford.

Following the methodology established by Lewis, the estimated effect of unionism was an increase in wages of 34.2 percent for union relative to nonunion blue-collar workers. For the total sample, wage rates of nonunion workers reached a maximum at age 43 and declined thereafter, whereas union workers' wages reached a maximum at age 50, also declining thereafter. Moreover, unions benefited less educated workers to a greater extent than more educated workers. The relative wage effects of unions were much larger for very young and for very old workers than for workers in their middle years of worklife. The coefficient of determination for the full model estimated approximately 30 percent of variation in relative wages for the blue-collar sample.

Michael Boskin used data from the 1967 Survey of Economic Opportunity to ascertain the impact of personal characteristics and the extent of

[56] Lewis, Unionism and Relative Wages....

[57] Weiss, "Concentration and Labor Earnings...."

[58] George E. Johnson and Kenwood C. Youmans, "Union Relative Wage Effects by Age and Education," Industrial and Labor Relations Review, 24, 2 (January, 1971), 171-179.

unionism on the relative hourly wage rate.[59] The collection of data at the individual level permitted a direct measure of union membership. An unusual feature of this study was Boskin's use of real wages as a dependent variable which was computed by factoring in a geographical cost of living index.

Boskin calculated wage equations for different race, sex, occupation and geographical area groups, noting that the relative wages of union and nonunion workers varied systematically along these categories. The differential was smaller than the estimates of Stafford and Throop but more akin to the wage differential estimates of Lewis and Weiss. Among the occupations tested, the differential was most pronounced for craftsmen, operatives, and laborers, ranging from 15 to 25 percent.

The inability of Boskin to compare his results directly with the studies of others may stem from the fact that he used real wages as a dependent variable. Moreover, his results may have been considerably tempered by the low unemployment of 1967 in the U.S. Boskin did not provide evidence of a coefficient of determination for his regression model.

Using data from the 1972 Bureau of Labor Statistics Occupational Pay Survey, Martin Personick computed wage differentials for construction workers.[60] Extent of unionism was measured by the standard method. The data covered 531,000 workers in 21 geographical areas.

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[59] Michael J. Boskin, "Unions and Relative Real Wages," _American Economic Review_, 62, 3 (June, 1972), 466-472.

[60] Martin E. Personick, "Union and Nonunion Pay Patterns in Construction," _Monthly Labor Review_, 97, 8 (August, 1974), 71-75.

Personick found a considerable union/nonunion wage differential of from 35 to 70 percent; however, most notable were the differentials due to local variations in bargaining power, type of construction work, and the amount of federally-funded construction work. For example, the carpenters in New York showed a 15 percent wage differential whereas in Hartford, Connecticut, the differential was approximately 84 percent. For laborers, the differential was as low as 6 percent in Chicago and as large as 77 percent in Dallas. Personick did not provide evidence of a coefficient of determination for his prediction equation.

Paul Ryscavage, employed data from the 1973 Current Population Survey and presented estimates of union/nonunion wage differentials for 24,703 workers.[61] He also computed wage differentials for race-sex groups among these workers. Explanatory variables included union membership, age, years of schooling, occupation and region. This micro level data set allowed for a direct measure of individual union membership. Wage differentials were based upon "usual" hourly earnings.[62]

Ryscavage estimated a union/nonunion wage differential for blue-collar occupations of from 28 to 39 percent above nonunion members who had similar characteristics. The effect of unionism for women in clerical, operative, and service jobs was from 20 to 25 percent. For both

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[61]   Paul M. Ryscavage, "Measuring Union-Nonunion Earnings Differences," Monthly Labor Review, 97, 12 (December, 1974), 3-9.

[62]   Ibid., 4. Ryscavage claimed that "usual" hourly wages were "less apt to include employment effects than annual earnings and average hourly earnings, which were often affected by deviations in normal working time, whether because of strike, illness or overtime work."

white and black men in the transportation equipment operative occupation, differentials were estimated to be approximately 40 percent.

Blacks and women gained relatively more from union membership than white men. The union effect on wages for blacks and women remained significantly higher even after controlling for age, education, occupation and region. The full regression model estimated approximately 47 percent of variation in usual hourly wages.

Ronald Oaxaca estimated the effects of trade union membership on relative wages within broad occupational/regional categories of urban workers using the 1967 Survey of Economic Opportunity.[63] He also estimated the effects of race and sex by using separate wage equations for each group. Individual level data permitted direct measurement of union membership status.

Results indicated that wage differentials appeared to be larger in the South (from 17 to 37 percent), especially for males in almost every occupational category (from 20.5 to 31.8 percent). The estimated union/nonunion wage differentials were generally the largest among operatives, laborers and service workers. Finally, differentials were largest, in general, for black males and white females, a finding consistent with the results of both Ryscavage[64] and Boskin.[65] Oaxaca did not provide evidence of a coefficient of determination for his prediction equation.

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[63] Ronald L. Oaxaca, "Estimation of Union/Nonunion Wage Differentials within Occupational/Regional Subgroups," _Journal of Human Resources_, X, 4 (Fall, 1975), 529-537.

[64] Ryscavage, "Measuring Union-Nonunion Earnings...."

[65] Boskin, "Unions and Relative Real Wages...."

Farrell Bloch and Mark Kuskin used the May 1973 Current Population Survey for white, non-Spanish males between age 25 and 64 to estimate separate wage equations for union and nonunion workers.[66] The use of micro level data allowed for a direct comparison of union and nonunion workers. The dependent variable in the wage equations was the natural log of usual weekly earnings divided by usual weekly hours. This variable may include overtime work and should not be confused with individual marginal wage rates.

The primary explanatory variables of interest were education, experience and experience squared which emphasized an interest in Human Capital Theory.[67] That is, an individual's formal education, experience and subsequent training should have been relatively more important for individuals in nonunion firms since seniority systems in unionized firms obviated the need for individuals to seek additional training outside the firm in order to be eligible for promotions. In essence, the return on human capital investment diminished more quickly for unionized employees. Thus, the effect of these variables on nonunion wages was hypothesized to be relatively greater than for union wages.

Results indicated that "an additional year of experience for a new worker raises the wage of union workers by about one percent and that of

[66] Farrell E. Bloch and Mark S. Kuskin, "Wage Determination in the Union and Nonunion Sectors," Industrial and Labor Relations Review. 31, 2 (January, 1978), 183-192.

[67] Gary S. Becker, Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education. 2nd ed. (New York: Columbia University Press, 1975).

nonunion workers by about 2.3 percent."[68] The effect for occupational groups was highest for laborers and lower skilled jobs.

Bloch and Kuskin then estimated wage equations for workers in manufacturing industries adding a concentration ratio for a sample of firms with more than 100 employees. The Census of Manufacturers provided concentration ratios and establishment size information.

Results showed that the concentration ratio was negative and statistically significant at the 5 percent probability level, but only for the union equation. The establishment size variable was negative in the union equation and positive in the nonunion equation, although not statistically significant at conventional levels. These particular results were inconsistent with most studies which included either or both variables. Bloch and Kuskin argued that this reflected the fact that "both large firms and unions have relatively strong preferences for fringe benefits as compared with monetary wage payments."[69] The wage differential of 5.31 percent was substantially below conventional estimates beginning with Lewis. The authors argued further that their "relatively low estimates are due to a high unemployment and unanticipated inflation in 1973 relative to the late sixties" when most studies previous to Bloch and Kuskin's work were done.[70]

The coefficients of determination were .19 and .47, respectively, for the separate union and nonunion equations. Bloch and Kuskin did not

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[68] Bloch and Kuskin, "Wage Determination....," 185.

[69] Bloch and Kuskin, 191.

[70] Bloch and Kuskin, 191.

provide an estimate of the amount of variation in earnings for the equation which they developed by combining the separate samples.

More recently, Wesley Mellow took an approach to the study of relative wages which represented an important departure from earlier work.[71] Conventional analysis made judgments about different individuals from both union and nonunion environments assumed to be very much alike (averages) on a cross-sectional basis. Mellow corrected this condition in a longitudinal analysis by tracing wage changes for the same individual when that individual moved from union to nonunion status or from nonunion to union status.

Mellow used data from the May Current Population Survey for the years 1974-75 and 1977-78 for nonagricultural wage and salary workers with samples of 10,456 and 11,466, respectively. The standard regression model included usual weekly earnings as the dependent variable with many of the traditional explanatory variables. Among these were employee quality variables used to capture human capital investment. Three unionism dummies were employed to capture union status at different time periods.

Changing union membership made a significant difference in one's wages. In general, workers who became union members showed an average increase in wages of about 7.5 percent. On the other hand, union members who moved to nonunion status experienced an average decline in wages of approximately 7 percent. A major implication of this study was that em-

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[71] Wesley Mellow, "Unionism and Wages: A Longitudinal Analysis," Review of Economics and Statistics, LXIII, 1 (February, 1981), 43-52.

ployees who became union members may also have needed to change occupations or industries to enjoy a wage differential.

Mellow's work also confirmed the importance of considering variations in the business cycle when conducting research on wage differentials. The period of 1974-75 represented one of sharp cyclical contraction, whereas the 1977-78 period was one of expansion. During the former, no change in the union premium was noted, whereas it diminished by about 2 percent during the 1977-78 period, a period of rapid expansion in the economy. Mellow offered no reason for the particularly low wage differential save for the unusual design of his study.

The author provided estimates for the amount of variation in wages accounted for in the different periods. The coefficient of determination for the regression model employing 1974-75 data was .51. For the 1977-78 sample, the regression model yielded a coefficient of determination of .49. In the next secton, studies seeking to explain the level of money wages are reviewed.

Wage Levels

Although wage differentials received the greatest research attention through the early 1980's in the area of wage determination, the basis upon which wage differentials were computed was the level or rate of money wages. A number of studies concentrated on wage levels alone. Some of the more comprehensive ones are reviewed below.

Stanley Masters sought to explain that plant size was a better in-

dicator of wage level than was the degree of economic concentration.[72]

From data available from the 1963 Census of Manufacturers, Masters first

regressed plant size (percentage of total employment occurring in estab-

lishments of at least 1000 workers) on average hourly earnings for pro-

duction workers. Plant size alone accounted for 20 percent of variation

in average hourly earnings. When concentration and conventional

unionization ratios were added as explanatory variables, plant size re-

mained significant at the one percent probability level while concen-

tration failed to reach statistical significance at the 10 percent

level.[73]

Arguing for the alleged effects of other competitive product market

variables, Masters ran a third regression which included a ratio for labor

intensity, durability of goods, and industry location in the South. The

plant size variable again reached significance whereas concentration

failed to do so. All other variables in the full model reached signif-

icance and the coefficient of determination was increased to .41. Mas-

ters' work presented some theoretical arguments to challenge many of the

studies which routinely took the union monopoly effect on wages for

granted.

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[72] Stanley H. Masters, "An Interindustry Analysis of Wages and Plant Size," Review of Economics and Statistics, LI, 3 (August, 1969), 341-345.

[73] The one percent probability level means that plant size would be ex-pected to demonstrate this relationship within the population 99 out of 100 times, while the relationship for concentration could not be demonstrated even 90 out of 100 times.

Wallace Hendricks used plant-level observations from 450 firms representing 47 different U.S. manufacturing industries in his study.[74] Data were secured from "key" contracts on file with the Bureau of Labor Statistics, those which represented firms having 1,000 employees or more. Data for non-key contracts were provided through mail survey responses from manufacturing firms in the industries studied. Hendricks' objective was to ascertain the effects of product market and labor market variables on wages per hour (including any cost-of-living allowance) for nine different occupations.

To represent labor market structure, Hendricks employed collective bargaining structure (or bargaining structure), local labor market structure, degree of unionization, and local competitive wages. Bargaining structure comprised 4 levels: (1) single plant; (2) firm-wide (several plants); (3) several employers (industry-wide/national); and (4) several employers (local). Bargaining structure was included to account for relative power differences between labor and the employer depending upon the way in which they were organized for negotiations. Local labor market structure and degree of unionization in the local labor market area were included to account for local "spillover" effects on wages not accounted for by the measure of unionization in the industry. Local competitive wages rounded out the explanatory variables for the possible connection of wage levels in markets dominated by competitive forces.

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[74] Wallace Hendricks, "Labor Market Structure and Union Wage Levels," Economic Inquiry, XIII, 3 (September, 1975), 401-416.

Hendricks also addressed the impact of product market structure on wage levels through the use of industry concentration ratios. He argued that pricing behavior of noncompetitive industries may not have been independent of the degree of unionization. Although Hendricks believed that both concentration and unionization would significantly and independently impact wage levels, he included interaction terms to account for their joint effect. Firm size and degree of labor intensity were included in analysis because Hendricks felt that they were probably proxies for concentration.

For labor market structure, results indicated the following. Firms in industry-wide bargaining units paid lower wages ceteris paribus than firms in either firm-wide or plant units. This tended to dispell the notion that the monopoly effects of unions on the labor market were enhanced by industry-wide bargaining. Moreover, local, multi-employer bargaining was greater in every occupation than under industry-wide bargaining. Plant-level bargaining did not perform as predicted when compared with firm-wide bargaining, the traditional comparison.

Traditionally, economists felt that wages were higher for union members who bargained on a firm-wide basis because they achieved greater wages by striking all plants in the same firm simultaneously. Apparently, firms preferred to bargain on a plant-by-plant basis so that they could engage in "whipsawing." That is, when a union struck one plant, the employer simply shifted production to other plants in the firm. In this study, plant-level bargaining yielded greater average wages, perhaps because firms wished to avert the felt need by union members for firm-wide bargaining.

Results for the product market variables were unequivocal. Wage

levels tended to increase for all occupations as (1) labor intensity de-

creased, (2) firm size increased, (3) the degree of unionization in an

industry and local labor market increased, and (4) concentration ratios

increased. In all cases, the coefficients for concentration were smaller

than for those of unionism.

The interaction dummies indicated that "as unionism increases within

a concentration class, wages increase."[75] Increasing concentration tended

to have a positive effect on wages up to moderate levels of concentration,

but the effect became negative when moving from moderate to high concen-

tration. At high levels of concentration, the union must have been very

strong to realize wage gains.

Hendricks demonstrated that one had to take both the labor market

and product market structures into consideration in the determination of

money wages. The amount of variation in hourly wages explained for all

nine occupations ranged from about 34 percent for machinists to about 50

percent for laborers.

James Dalton and E. J. Ford, Jr. also addressed the effect of product

market structure on wages, determining whether oligopolists paid higher

wages than competitive firms.[76] Their arguments for studying

oligopolistic structure were not new; however, their improvements in

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[75] Hendricks, 414.

[76] James A. Dalton and E. J. Ford, Jr., "Concentration and Labor Earnings in Manufacturing and Utilities," Industrial and Labor Relations Review, 31, 1 (October, 1977), 45-60.

methodology and variable specification of market power, human capital and industry influences were noteworthy.

Dalton and Ford employed micro-level data from the 1/1000 Public Use Sample of the 1970 U.S. Census for manufacturing and utility employees between the ages of 14 and 65. Specific occupations included clerical draftsmen, operatives and laborers. The final sample consisted of 5,031 manufacturing and 322 utility employees for a total of 5,353 observations.

Real wages, the dependent variable, were regressed on a concentration ratio, extent of unionization, and a number of traditional controls. Results showed that oligopolists, on average, paid higher wages than their competitors. It should be noted, however, that for each one-point increase in concentration up to the 50 percent level, wages increased by $20 in manufacturing. Increases in concentration beyond the 50 percent level exerted a significant impact only when wages for utilities were included in analysis. Thus, for manufacturing, the impact of concentration on wages needed qualification.

With regard to industry characteristics, unionization demonstrated a positive sign with the data set as a whole, with low concentration situations, and in high concentration situations when utilities were included; however, none of the coefficients were significant. The authors attributed this inconsistent finding to the fact that the unionization variable was inappropriate for micro-level data.

Employment growth also exhibited a positive relationship with wages, significant in all regressions except for those in the high concentration situation. It seems as if only oligopolies paid wage premiums to offset volatile employment trends in durable goods. Finally, the notion that a

wage differential existed for southern workers was dispelled. Workers in the South earned more in real wages than their counterparts in the Northeast.

Dalton and Ford were able to explain a moderate amount of variation in real wages with their models. The coefficients of determination for manufacturing plus utilities and for manufacturing alone were approximately .56 and .55, respectively.

Charles Haworth and Carol Jean Reuther presented information which supported Bloch and Kuskin's argument about the sensitivity of the relationship between concentration and wages with the business cycle.[77] Regression models were constructed to predict wage levels for the years 1958 and 1967 from the Census of Manufacturers data to compare union wage levels for periods of differing economic conditions. 1958 represented a period of economic slack, whereas 1967 represented a period of rapidly increasing prices.

Three sets of explanatory variables were employed in regression - industry structure, labor characteristics, and market imperfection variables. The market imperfection variables included an industry concentration ratio and a unionization variable, measured by the percentage of workers in an industry covered by collective bargaining agreements.

Separate regressions were run for 1958 and 1967 to test for the effects of concentration and unionism on wages. Haworth and Reuther's work demonstrated that the concentration-wage relationship changed signif-

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[77] Charles T. Haworth and Carol Jean Reuther, "Industrial Concentration and Interindustry Wage Determination," Review of Economics and Statistics, LX, 1 (February, 1978), 85-95.

icantly over the business cycle, making cross-sectional studies sensitive to the year used for analysis. During periods of economic slack when firms raised their prices, wages tended to be higher for concentrated industries. During the period of rapidly increasing prices, concentrated industries did not raise prices or wages as rapidly as competitors.

The interaction of concentration and unionism yielded similar results. For the recessionary year 1958, when unions worked to offset unemployment with higher wages, the interaction was significant. For the inflationary period 1967, unions, which were tied to long-term contracts, were not able to increase wages as quickly as nonunion competitors. Finally, Haworth and Reuther discovered that the concentration-wage relationships were nonlinear. For industries with concentration levels below 50 percent, concentration did not demonstrate statistical significance, a finding inconsistent with Dalton and Ford.

This study accentuated the need to consider multiple time periods when conducting studies which included a relationship between concentration and wages. Moreover, the study reinforced earlier work which pointed to the importance of controlling for labor quality when considering economic concentration.[78] The results indicate that six independent variables can explain over 72 percent of variation in wages found in both the 1958 and 1967 data.

William Bailey and Albert Schwenk attacked the conventional assumptions underlying the consistently revealed relationship between estab-

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[78] Weiss, "Concentration and Labor Earnings...." and Masters, "An Interindustry Analysis of Wages...."

lishment size and wage rates. They made reference to three major

assumptions:

> (a) Unions are more likely to have organized the larger establish-
> ments and to be more militant because of the more impersonal re-
> lationships. Therefore, the observed differential is a union, not
> a size, differential; (b) larger establishments are more likely to
> have incentive pay systems, which produce higher hourly earnings;
> and (c) the larger establishments are more likely to be found in the
> larger, higher-paying labor market areas, so what is observed is a
> size-of-area, not a size-of-establishment, differential.[79]

The purpose of this study was to determine whether a wage rate dif-

ferential would exist independent of union status, area size, and method

of payment.

Bailey and Schwenk employed the Industrial Wage Survey of the BLS

on 34 selected manufacturing industries for from four to seven occupations

to test their model.[80] The dependent variable, straight-time hourly

earnings, was regressed on variables representing union status, area

size, method of wage payment, and several control variables. The unionism

variable was measured in the conventional way.

Results were derived from two basic forms of analysis. Regressions

run for each occupation by industry did not support the common assumption

that the size-wage correlation was universal. Regression analysis fur-

ther indicated that the establishment size-wage rate relationship, where

significant, was not explained by area size, unionization, or incentive

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[79] William R. Bailey and Albert E. Schwenk, "Wage Rate Variation by Size
of Establishment," _Industrial Relations,_ 19, 2 (Spring, 1980),
192-198.

[80] Industry Wage Survey data were collected at three to five-year in-
tervals indicating that different industries may have had somewhat
different reporting dates, which might have accounted for the au-
thor's omission of a specific date for the data.

pay. Size of establishment could not be viewed simply as a proxy for area size. The union propensity to organize establishments which were larger did not account for the size-wage differential. Finally, although there was evidence that incentive-paid workers tended to have higher earnings, this was not so to the exclusion of the establishment size differential.

Of the 60 regressions run for each occupation by industry, coefficients of determination varied widely. The range for variation explained in straight-time hourly earnings was from approximately 19 percent to 80 percent. The median coefficient was .54 and the mean coefficient was .53.

Thomas A. Kochan developed a theoretical model of bargaining power to test the impact of various sources of power (economic, structural, organizational, and negotiations process) on several bargaining outcomes.[81] Conference Board survey data were used to run three separate regressions using the following dependent variables: (1) average hourly wages; (2) percentage change in average hourly wages between the years 1969 and 1977; and (3) differences between management wage targets and actual wage settlements for the most recent round of negotiations. Because of data limitations, regression analysis for the full complement of predictors was restricted to U.S. manufacturing industries.

Specific hypotheses were tested for wage levels and wage changes:

1. The larger the firm, the higher the wage level and the higher the wage increase.

2. The higher the labor-to-total cost ratio, the lower the wage level and the lower the rate of wage increase.

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[81] Kochan, Collective Bargaining and Industrial....

3. The presence of a cost-of-living clause in the contract is associated
    with a higher wage level and a higher rate of wage increase.

4. The greater the weight given by the firm to local labor market cri-
    teria in setting wage and fringe benefit targets, the lower the wage
    level and the lower the rate of wage increase compared with those in
    multi-plant units.

5. Firms bargaining in single-plant bargaining structures have lower
    wage levels and lower rates of wage increase.

6. The higher the rate of strikes per production worker in the industry,
    the higher the wage level and the higher the rate of wage increase.

7. The higher the percentage of employees in the industry unionized, the
    higher the wage level and the higher the rate of wage increase.

8. The higher the percentage of employees in the firm unionized, the
    higher the wage level and the higher the rate of wage increase.

9. The higher the concentration level in the industry and the higher the
    level of union organization in the industry (or in the firm) the
    higher the wage level and the higher the rate of wage increase.[82]

Results indicated that the hypotheses were upheld concerning the
effects of (1) the labor-to-total cost ratio, (2) cost-of-living clause,
(3) local labor market wage criteria, (4) plant-level bargaining struc-
ture, (5) strike rate, (6) percent of industry and/or firm employees
unionized, and (7) the combination of high concentration and high levels
of unionization. These variables were important sources of bargaining
power in U.S. manufacturing. Neither size nor concentration, when entered

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[82] Kochan, _Collective Bargaining and Industrial...._, 319.

in the regressions alone, were significant predictors of either wage levels or wage changes.

A limited number of these predictor variables was run for the entire list of industries available from the Conference Board surveys. Whereas many of the hypothesized relations held for manufacturing, only strikes and union coverage remained significant for all industries tested.

Regressions explained from approximately 19 to 35 percent of variation in hourly wages for manufacturing and from 22 to 28 percent for all industries. Regressions explained from approximately 37 to 63 percent of variation in wage changes for manufacturing and from approximately 63 to 65 prcent for all industries. Results for regressions concerning wage targets were not reviewed as only about 7 percent of variation in wages was explained.

In an unusual research endeavor, John Kwoka addressed the combined effect of three major explanatory variables on wages--the degree of industry concentration, unionization and plant size.[83] Each of these major explanatory variables demonstrated independent, significant relationships with wages for sound theoretical reasons. Unionization, of course, is explained through its ability to exercise bargaining power, a collective phenomena not available to employees in nonunion firms. Large plant size is assumed to create economies of scale in production, permitting higher wages. Concentrated industries which, by definition, enjoy monopoly

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[83] John E. Kwoka, Jr., "Monopoly, Plant, and Union Effects on Worker Wages," Industrial and Labor Relations Review. 36, 2 (January, 1983), 251-257.

profits are able to more easily afford increases in wages or pass on cost increases to consumers.

Normally, these three major variables are correlated with one another, more or less. Concentrated industries do seem to be larger as a general rule. Furthermore, unions tend to organize the larger, more profitable firms which are usually more closely associated with worker discontentment with their jobs and/or work organizations. Moreover, a union's return on investment in organizing is also greater in larger, more profitable firms.

Kwoka developed a model from the 1977 Quality of Employment Survey data on 250 blue-collar, manufacturing workers in industries for which concentration data were available. The dependent variable, hourly wages, was assumed to be jointly determined by plant size, concentration, unionization, the interaction between concentration and unionization, and labor quality. The traditional controls were included.

Despite multicollinearity between the three major variables of interest, they behaved predictably. Wages were significantly greater under union contracts, in larger firms, and in concentrated industries. Kwoka noted that ceteris paribus, "wages are 5.3 percent higher for each increase of 1,000 workers in a plant, and they are also higher when either a monopoly or a union is present."[84] Concentration demonstrated the weakest impact of the three major variables on wages, perhaps because it is not the best measure of product market monopoly that explained workers' wages. The interaction between unionization and concentration demon-

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[84] Kwoka, "Monopoly, Plant, and Union....," 255.

strated, once again, that unions were more important where concentration was relatively low, but where concentration was high and wages were already higher than elsewhere, unions did not, or perhaps, could not raise wages more.

Again, the considerable impact of labor quality was noted. Removing the labor quality index from the full model reduced the coefficient of determination from .679 to .226, a change of substantial magnitude. The full model explained approximately 69 percent of variation in hourly wages.

In a more recent study by Sandra Christensen and Dennis Maki, estimates were made of the effect of compulsory union membership on wage levels. Specifically, they hypothesized that "covered nonmembers add less than members to a union's bargaining power, since nonmembers make no financial contribution to the union and may be more willing than members to cross picket lines during a strike."[85] In short, the authors felt that without compulsory union membership, unions not only lost bargaining power, but the ability to control the bargaining unit members, as well.

Christensen and Maki used three estimation models from cross-sectional data for U.S. manufacturing industrial workers to accommodate the possibility that wages, union levels, and industry labor quality were jointly determined. Data were provided from 54, three-digit industries for 1970 and 1971 except the unionization data which covered the years

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[85] Sandra Christensen and Dennis Maki, "The Wage Effect of Compulsory Union Membership," Industrial and Labor Relations Review, 36, 2 (January, 1983), 230-238.

1968 through 1975. Each of the three estimation models included a wage, unionization, and labor quality equation.

The dependent variable was defined as the average wage for production workers in a given industry. The three variables for union coverage represented the only difference between the three different models. Union coverage variables were (1) the proportion of workers covered by collective bargaining, (2) the proportion of production workers who were union members, and (3) the proportion of production workers who were covered by collective bargaining agreements but who were not union members.

Regarding the issue of compulsory union membership, Christensen and Maki noted that those workers in the bargaining unit who were not union members did "not contribute significantly to the ability of a union to raise industry wages."[86] Their findings supported the notion that compulsory union membership clauses enabled unions to negotiate significantly greater wage increases. In other words, wage increases were greater, on average, in bargaining units which had full union membership.

The authors were able to explain a substantial amount of variation in wages for all three models. The coefficients of determination ranged from .86 to .87. In the next section, the issue of fringe benefit determination was addressed.

Fringe Benefit Determination

While a great deal of effort has been devoted to studying wage levels and relative wages, to date, very little attention has been paid to ana-

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[86] Christensen and Maki, 233.

lyzing union-nonunion differentials for fringe benefits and/or the impact of unions on fringes. Over time, however, the total share of compensation associated with voluntary fringes grew rapidly, thus there is an emerging body of important literature in the area.[87]

Loren Solnick was among the first economists to explore the determinants of employer expenditures for fringe benefits.[88] He used the BLS survey of employee compensation for 1,388 manufacturing establishments in 16 industries to assess the overall impact of unions, earnings, and employment level on fringe benefit expenditures.[89] Observations were recorded at the firm level for production workers. Unionization was measured by a dummy to reflect presence/absence of a union. Wages were straight-time hourly earnings. Solnick also conducted an interindustry analysis in order to clarify the findings for manufacturing, in general.

Fringe benefits, the dependent variable, were represented by pensions and by expenditures for insurance plans (life, health and accident). Both were regressed on the three major predictor variables and three control variables (added to adjust for geographical region). Separate regressions were then run by industry.

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[87] Richard B. Freeman and James L. Medoff, "The Impact of Collective Bargaining: Illusion or Reality? in U.S. Industrial Relations, 1950-1980: A Critical Analysis, eds. Jack Stieber, Robert B. McKersie, and D. Quinn Mills (Madison, WI: IRRA, 1981), 47-97.

[88] Loren M. Solnick, "Unionism and Fringe Benefit Expenditures," Industrial Relations, 17, 1 (February, 1978), 102-107.

[89] U.S. Department of Labor, Employee Compensation in the Private Nonfarm Economy, 1972, Bureau of Labor Statistics (Washington, DC: U.S. Government Printing Office, 1974).

Results indicated that for the manufacturing sector, in general, unionization, earnings, and employment level were positively associated with employer expenditures for insurance plans and pensions. Unionization was associated with a 46 percent greater level of insurance expenditures, while the level of expenditures for pensions was 24 percent higher. Fringes comprised a larger proportion of total compensation as earnings rose. Employment also had the expected positive relationship with fringes (employment was used as a proxie for firm size). The regional dummies showed that the highest level of expenditures was associated with firms located in the Northeastern part of the U.S.

The separate regressions for pensions and insurance explained from a relatively low to a moderate amount of variation in the respective dependent variables. For pensions, the coefficient of determination was .23. The estimate was approximately 45 percent for insurance.

Richard B. Freeman provided a comprehensive study of the effects of unionism on compensaton packages.[90] While he focused primarily upon the union effect on fringe benefits, he also studied the relative importance of fringes with wages and with the total compensation package. Furthermore, Freeman explored the probability that the presence of unions in an establishment (blue-collar) raised the level of fringes for white-collar employees in the same establishment. Finally, he explored the degree to which unions affected the various components of the fringe benefit mix.

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[90] Richard B. Freeman, "The Effect of Unionism on Fringe Benefits," Industrial and Labor Relations Review, 34, 4 (July, 1981), 489-509.

Freeman employed data from the Expenditures for Employee Compensation (EEC) Survey of the BLS which reported information for establishments instead of the customary industry averages. The analysis focused on the EEC surveys for 1967-68, 1969-70, and 1971-72 which were pooled to form one major sample. The sample was then adjusted so that monetary figures were expressed in terms of 1967 dollar units. The final sample represented 10,088 establishments which included both blue-collar and white-collar employees.

Since the EEC data did not include information on personal characteristics, Freeman provided data from the Current Population Survey (CPS) of the BLS from the May 1973, 1974 and 1975 files. Education, sex, race, and employee age were included as controls for all workers in the total sample.

Fringe benefits, the dependent measure, referred to "voluntary" fringes such as vacation pay, holiday pay, pensions, life, accident, and health insurance, sick leave, overtime pay, bonuses, and shift premiums. Regression estimates were made using total fringes and specific fringes as dependent variables for all private establishments in the sample and for a manufacturing subset of the sample. In his analysis, Freeman used independent variables which previously demonstrated relationships with both unionism and fringes.

Results indicated that with total compensation held constant, unions raised fringe expenditures significantly, particularly for life, accident and health insurance, pensions, and vacation and holiday pay. It had its greatest impact on low-wage firms, small firms, or both. Establishments for the entire sample which were organized, paid approximately 10 cents

more per hour for fringes than nonunion firms and for the manufacturing subsector, the differential was almost 8 cents.

Regressions showed that "unions had their greatest positive effect on pensions, on life, accident and health insurance, and on vacation and holiday pay" in order of descending importance.[91] The greatest negative effects were on overtime premiums, sick leave, and bonuses.

Freeman also estimated the probability that fringe benefits would be offered simply because of the presence of a union. Unionism raised the probability that "an enterprise would provide life, accident and health plans, overtime premiums, holiday pay and shift differentials, while reducing the probability that sick leave and bonuses would be offered."[92]

The greatest probability was for pensions in both manufacturing (24 percent) and overall (29 percent). Another finding showed that unionism raised fringes involving deferred compensation and fringes that older employees were likely to prefer.

The impact of unionism on total compensation was 17 percent above the impact of unionism on straight-time pay. In manufacturing, this estimate was 25 percent. Freeman felt that the union impact on fringes was not only important in changing the composition of the wage bill, but also in enhancing the magnitude of the union effect on total pay.

Another major question which Freeman addressed was the potential for the "spillover" effects of blue-collar unionism. Freeman estimated that

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[91] Freeman, 502.

[92] Freeman, 502.

blue-collar unionism had a sizeable impact on white-collar fringes. This simply meant that workers who were not part of the bargaining unit (i.e., white-collar employees) enjoyed an increase in their benefit packages simply because blue-collar employees in their establishment enjoyed increases in fringe benefits through collective bargaining.

One of the most important points made from Freeman's work was that since unionism clearly had an impact on fringes and because fringes were clearly an important part of the wage bill, studies which concentrated on wages alone significantly understated the effect of unionism on compensation and on the differential between unionized and comparable nonunionized workers.

Even after controlling for different conditions, Freeman was able to explain considerable variation in his dependent measures. His best estimate of the effect of unionism on voluntary fringes paid nonoffice workers was about 64 percent for all industries. For the manufacturing subsample, the figure was approximately 68 percent.

In a similar study, A. K. Fosu explored the potential impact of unionism on pension fringes.[93] Fosu used the Employee Compensation Survey of the BLS for 1973 for office and nonoffice establishments in the U.S. private business sector. Observations were recorded at the industry level. He regressed fringes (amount expended for employee group fringes by establishment) on hourly earnings, hourly compensation less per hour

[93] Augustin Kwasi Fosu, "Impact of Unionism on Pension Fringes," Indus-
     trial Relations, 22, 3 (Fall, 1983), 419-425.

employer expenditure for pensions, and a unionism variable. Unionism was measured again by convention.

Fosu ran regressions on a full sample, which _included_ firms without pension plans and with a subsample which _excluded_ firms without pension plans. The union coefficient of determination fell by about 80 percent when those without pension plans were omitted from the sample. He concluded that for blue-collar establishments, unionism had little or no impact on actual pension expenditures, but positively influenced pension _initiation._ The union variable for blue-collar establishments contributed approximately 31 percent of variation in pension expenditures. This is noteworthy given that the full model explained only about 41 percent.

Fosu argued that unions may have reduced fixed costs associated with organizing a pension plan. Moreover, he felt that the standard assumption that union choice led to a larger benefit level than nonunion choice was incorrect in this study. Fosu reasoned that the union "threat" effects to organize comparable nonunion firms caused nonunion firms to increase their pension fringes relative to unionized product market competitors.

Although Fosu's findings contradicted Freeman's, they should be viewed cautiously. He used a very limited set of explanatory variables. Furthermore, Fosu could account for only a moderate amount of variation in pension fringe expenditures using the sample for the entire industry.

Summary of Financial Bargaining Outcomes

The preceeding sections dealing with financial bargaining outcomes encompassed the topics of wage differentials, wage levels/rates, and

fringe benefit levels and differentials. A general summary of studies covering these topics follows.

First, there were marked union/nonunion wage differentials even after controlling for a number of industry, labor market, product market, human capital, and personal variables. The issue of whether unions caused wage differentials was another matter. There was a strong and consistent relationship between unionism and higher wages for union members relative to nonunion members. Moreover, wage differentials widened since the work of Lewis and his contemporaries, signaling a continuous union effect, ceteris paribus. Nonunion firms tended to act as if unions caused both higher wages and higher fringe benefits. There was evidence of union "spillover" effects for wages and fringes. That is, nonunion firms in highly unionized industries set wage and benefit levels competitively with unionized firms, perhaps to attract better quality employees that would otherwise have been drawn to higher paying unionized firms, or to keep their plants from being organized.

The body of literature reviewed thus far employed a number of explanatory variables other than unionism which revealed significant relationships with both wages and fringe benefits. For example, males, in general, earned more than females, and whites earned more than blacks even after controlling for educational attainment differences. The black-white differential seemed to have narrowed appreciably up to the mid-1980's, perhaps because of the upgrading of blacks in both educational attainment and equal employment opportunity.

Union-nonunion wage and fringe benefit differentials were considerable for blacks and females. That is, blacks who were union members

earned significantly more than blacks in comparable nonunion firms. This relationship held for women, as well.

Human Capital Theory made a major contribution to a clearer understanding of wage and fringe benefit determination. Investments in education tended to pay off for individuals since greater educational attainment was positively related to higher wages and fringes. This relationship was stronger for nonunion employees since seniority prevailed in unionized firms, creating a marginally decreasing return on investment for union members. Union-sponsored training and negotiated, job-specific training may also have made additional outside training/education somewhat less necessary for union members.

Age and experience tended to be associated with larger union payoffs, as well. Older persons, in particular, demonstrated a greater preference for fringe benefits, especially the deferred variety, such as pensions. Productivity should increase with both age and experience to some point at which marginal productivity begins to decrease. This was reflected in research results which found different earnings-experience profiles for union and nonunion workers. Tenure, a related concept, was also associated with greater union gains, perhaps because of its relationship with seniority more than with productivity. There was considerable intercorrelation among these three variables.

The degree of labor intensity was also associated with wage and fringe benefit gains for union members. That is, the wage bill tended to increase for firms which had a larger ratio of capital-to-labor. That may have been because there were fewer employees to spread pay among than in comparable units which were relatively more labor intensive. Wages

should have been less sensitive to product demand in capital intensive firms. Moreover, a capital intensive firm may have been in a better competitive position vis-a-vis similar firms which were relatively labor intensive. The higher level of skill and education associated with jobs in capital intensive facilities may have brought higher wage and fringe benefit expenditures.

Industry concentration, as measured by a four-firm concentration ratio, generally demonstrated a positive relationship with wages; however, it was qualified in almost every study in which it was included. It appeared to be a complex variable, and interacted both with the degree of unionism and establishment/firm size in the explanation of wage determination. It was apparently not related to wage level and relative wages in a linear fashion. Concentration was not included as an explanatory or control variable in any of the fringe benefit studies.

Wages and fringes tended to increase with firm size and establishment size, and it was not clear which was the better predictor. Skill level also led to greater wage and fringe gains. This may have been associated with the nature of the production process (capital v. labor intensity).

The role of bargaining structure in wages and fringes was far from clear; however, lower wage levels and wage changes were associated with contracts negotiated in single-plant environments. Wage levels and differentials and fringe benefit levels and differentials associated with firm/industry location in the South were somewhat lower than for other geographical regions. This association was not as strong in later studies of wage differentials. Even though unions were fewer in number in the

South, they were concentrated in large firms in areas which tended to be heavily unionized, much as in the rest of the country.

An exhaustive body of literature existed for wage determination in stark contrast with that of fringe benefit determination. From the few studies which were conducted on fringes, the evidence suggested that the fringe benefit effect was even greater than the sizeable union/nonunion wage differential. This suggested that the impact of unions on compensation, per se, was consistently underestimated.[94]

Finally, one should take note of the effects of general economic conditions on wage determination. Unions recognized the trade-off between employment and inflation. They tended to "live with" the former and help insulate their members from the latter, perhaps because cost-of-living clauses were found in labor contracts. Unionized firms tended to be less "sensitive" to business cycle fluctuations than nonunion firms. Union members tended to lose less when the economy contracted because collective bargaining agreements imposed floors on wage increases, below which the employer could not make downward adjustments. Research on wage differentials[95] and wage levels[96] supported these trends.

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[94] As yet, an unanswered question was the effect of total compensation (wages plus fringes) on the likelihood that one would join a union. This should have been particularly important in studies which included unionism and wages, per se, in a simultaneous equations framework and should have given a better estimation of the joint effect.

[95] Boskin, "Unions and Relative Real Wages..."; Bloch and Kuskin, "Wage Determination..."; and Mellow, "Unionism and Wages...."

[96] Haworth and Reuther, "Industrial Concentration...."

In the foregoing studies, a variety of phenomena were used to represent bargaining power. Surprisingly, only two included strikes which have been used universally to underscore the ability of unions to wrest concessions from the employer through collective negotiations. As expected, strikes were shown to have a strong influence on wage determination in both studies.

In the section to follow, the literature which considered virtually all items in the collective bargaining agreements as both relevant and quantifiable were reviewed. The evolution which witnessed a broadening in scope of bargaining outcomes subjected to analysis also witnessed a carry over of virtually the same set of explanatory variables. Many of the attendant problems and limitations associated with variable specification and methodology were carried over too. For this reason, the limitations of wage and fringe benefit determination were incorporated with a discussion of the limitations of bargaining outcomes research.

Financial and Non-Financial Bargaining Outcomes

To this point, empirical research which encompassed an increasing number of bargaining outcomes was reviewed, centering upon the quantifiable ones. This section reviews empirical studies which explored a wide range of both financial and non-financial bargaining outcomes simultaneously.

The review is organized in two parts. First, several pivotal research projects conducted in the public sector are discussed. These trace the origin of methodology which allows one to explore virtually the entire scope of bargaining issues in a contract. Second, the private sector

empirical research which employed this methodology is reviewed. This allows one to assess the extent to which the traditional explanatory variables used in wage and fringe benefit determination accounted for trade-offs in collective bargaining. This is a critical issue in a period requiring concession bargaining.

Origin of the Study of Bargaining Outcomes

The seminal work on collective bargaining outcomes is that of three Harvard colleagues; Sumner Slichter, James Healy and Robert Livernash.[97] As the result of three years of intensive field research involving 650 persons representing 150 companies, 25 industry associations and 40 unions, a volume assessing the impact of collective bargaining on the employer's ability to conduct business was constructed. In the nearly 1,000 page volume, the authors related a broad range of bargaining outomes, both financial and non-financial, to the management of a number of industries, with heaviest emphasis on manufacturing. This manuscript remained the standard for other such encyclopedic case studies spanning collective

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[97] Sumner H. Slichter, James J. Healy and E. Robert Livernash, The Impact of Collective Bargaining on Management (Washington, DC: The Brookings Institution, 1960).

bargaining in education,[98] municipal government,[99] law enforcement,[100] and health care administration.[101]

More recently, research of an empirical nature evolved to such an extent that a broad range of collective bargaining outcomes were quantified and subjected to empirical analysis. In the first such effort, Thomas Kochan and Hoyt Wheeler outlined four minimum conditions which they felt should be met in any formal theory utilizing collective bargaining outcomes as the dependent variables:

> (1) outcomes should be conceptualized in a way that includes all (or a representative sample) of the relevant items of interest that form the content of negotiations; (2) a concept of union power should be developed that reflects the underlying complexity of forces affecting a bargaining relationship and that is susceptible to measurement; (3) the model should be tested empirically in order to assess its validity; and (4) the test should take place at the level at which bargaining actually takes place.[102]

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[98] Charles R. Perry and Wesley A. Wildman, The Impact of Negotiations in Public Education (Worthington, OH: Charles A. Jones Publishing Company, 1970; Joseph Garbarino and William Aussieker, Faculty Bargaining: Change and Conflict. Report for the Carnegie Commission on Higher Education and the Ford Foundation (New York, NY: McGraw-Hill, 1975); and Frank R. Kemerer and J. Victor Baldridge, Unions on Campus (San Francisco, CA: Jossey-Bass, 1975).

[99] David T. Stanley, Managing Local Government Under Union Pressure (Washington, DC: The Brookings Institution, 1972).

[100] Hervey A. Juris and Peter Feuille, Police Unionism (Lexington, MA: D.C. Heath, 1973) and Margaret Levi, Bureaucratic Insurgency: The Case of Police Unions (Lexington, MA: D.C. Heath, 1977).

[101] Hervey A. Juris, "Labor Agreements in the Hospital Industry: A Study of Collective Bargaining Outputs," Labor Law Journal, 28, 8 (August, 1977), 504-511 and Richard U. Miller, Brian E. Becker and Edward B. Krinsky, The Impact of Collective Bargaining on Hospitals (New York, NY: Praeger, 1979).

[102] Thomas A. Kochan and Hoyt N. Wheeler, "Municipal Collective Bargaining: A Model and Analysis of Bargaining Outcomes," Industrial and Labor Relations Review, 29, 1 (October, 1975), 49.

As a first step toward meeting these minimal conditions, Kochan and Wheeler focused on the issue of measurement. They felt that it was necessary to score outcomes on a unidirectional basis. Since the union was ordinarily the "moving party" in negotiations, they scored outcomes according to the degree to which the outcomes approached union objectives.[103]

A coding scheme was devised for 53 contract categories from contracts provided by the International Association of Fire Fighters (IAFF). Two steps were used--one involving an unweighted scheme and another involving a weighted scheme. In the unweighted scheme, each category alternative for each of the 53 contract categories was assigned a value on what appeared to be relatively equal intervals. For example, the following alternatives have the values displayed for the holidays category, a non-financial bargaining outcome:[104]

Holidays

> 0 = no reference
>
> 1 = five days or less
>
> 2 = 5 1/2 to 7 days
>
> 3 = 7 1/2 to 9 days
>
> 4 = 9 1/2 to 11 days
>
> 5 = 11 1/2 or more days

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[103] Objectives were judged by an IAFF model contract published to assist municipal locals in their collective bargaining efforts.

[104] Kochan and Wheeler, 64.

In the weighted scheme, a group of IAFF representatives were asked to assign a value to each category in order of its importance to each participant. Then, participants were to assign a value to each alternative under each category. Independent weights were assigned to each alternative by multiplying it by its category value. The average across participants for each category x alternative was the weighted score for each alternative.

The two schemes were virtually identical (r = .936) with one another. Kochan and Wheeler opted for the unweighted scheme. They reasoned that if both methods were interchangeable, they would use the less expensive one.

The contracts to be evaluated came from a sample of 121 collective bargaining agreements in effect for the IAFF in 1972. A bargaining outcome score was derived for each contract by summing the scores for each category included in a particular contract. Thus, a collective bargaining outcomes index was developed. A total score for 52 potential outcomes present in each contract formed the dependent variable in Kochan and Wheeler's study.

Completed survey questionnaires for each of the 121 bargaining relationships provided data for the independent variables which measured four dimensions of environment in municipal labor-management relations. They were legal, political, economic and organizational (union and the employer). All were assumed to be proxies for bargaining power.

Regression results indicated clearly, that the characteristics of the legal environment (comprehensiveness of the collective bargaining law and the existence of either a fact-finding or a compulsory arbitration

provision) were the strongest determinants of bargaining outcomes of those included in the model. Moreover, the degree of decision-making power of the negotiator for the employer was both positive and significant at the 1 percent probability level. No other variables reached significance at the 5 percent probability level or less. Kochan and Wheeler's model explained almost 40 percent of variation in bargaining outomes.

. Paul Gerhart developed a contract indexing technique independent of, but quite similar to, that of Kochan and Wheeler.[105] Gerhart developed a quantitative index which allowed for a total bargaining outcomes score. The weighting problem for each category alternative was subjected to a test of Wilkes Law which states, in effect, that as the number of alternatives (per contract) become larger, the weights become unimportant. Gerhart empirically tested 158 items drawn from a random sample of 262 municipal labor agreements in effect in 1967-68 covering many different occupations. The contracts were negotiated between municipal managements and four major public sector union organizations.

Gerhard went through a rather tedious process of determining the appropriate weighting scheme:

> To test Wilkes's theorem empirically, nine different weighting schemes were developed, using a range of different perspectives that union negotiators might take... Nine different contract scores were thereby generated for each of the 262 contracts in the study. The lowest r in a correlation matrix of the nine scores was 0.84. Furthermore, few significant differences in the coefficients on inde-

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[105] Paul F. Gerhart, "Determinants of Bargaining Outcomes in Local Government Labor Negotiations," Industrial and Labor Relations Review, 29, 3 (April, 1976), 331-351.

pendent variables were noted when these alternative formulations of the dependent variable were used in the model.[106]

Thus, once the number of contracts increased past 100, differences in weighting tended to dissipate. The reader was not provided the actual formula for the derivation of the contract index.

Gerhart used multiple regression to estimate the impact of 18 environmental variables on bargaining outcomes. The variables were classified as either exogenous, controllable and endogenous.

Bargaining outcomes were regressed on each of the three groups of variables with somewhat similar results with those of Kochan and Wheeler. For example, statutory bargaining obligation enhanced bargaining outcomes. Laws which specifically prescribed penalties for strikes had a depressing effect on union power. Three of the endogenous varibles (use of pattern bargaining, strike activity, and per capita revenue) resulted in significant and positive correlations with bargaining outcomes, but collinearity between these three created unstable coefficients in the regression analysis making interpretation impossible. Gerhart was able to explain approximately 46 to 48 percent of variation in bargaining outcomes in his models.

The work of Gerhart and Kochan and Wheeler did not provide strong theoretical linkages between hypothesized variables and bargaining outcomes, although these projects represented important developmental strategies. Clearly, the strongest contribution of these studies was the fact that bargaining power was measured in such a way so as to allow for

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[106] Gerhart, 336.

the inclusion of a relatively large number of both financial and non-financial bargaining outcomes.

John Anderson extended this body of research by using a systems conceptual framework to identify environmental, management and union organizations, and bargaining process characteristics.[107] These were used as proxies for sources of bargaining power affecting bargaining outcomes. Both wage and nonwage bargaining outcomes were evaluated separately as dependent variables.

Anderson employed data from questionnaires and interviews from 85 local unions in 26 major Canadian municipalities in his study. The bargaining outcomes were constructed in a fashion similar to Kochan and Wheeler and Gerhart using the "favorability to the local union" approach. Anderson added the scores on each of the 45 contract provisions to form a total score for each contract. He used the base wage rate for each occupational group to represent his wage dependent variable.

In addition to a rather formidable list of independent variables, Anderson used age of bargaining relationship and union size as control variables because of their well-known association with wage bargaining outcomes. Anderson then ran three separate regressions each for both wage and nonwage bargaining outcomes. The first regression used unstandardized data, the second equation used normalized data, and the third used a reduced-form equation with approximately two-thirds of the variation in both wage and nonwage outcomes explained.

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[107] John C. Anderson, "Bargaining Outcomes: An IR Systems Approach," Industrial Relations, 18, 2 (Spring, 1979), 127-143.

Results indicated that only the environmental (political, economic, social and legal) and the employer characteristics made unique contributions to variance explained in both wage and nonwage bargaining outcomes. Of the control variables, only age demonstrated a significant and positive relationship with outcomes. That is, as the bargaining relationship matured, the employer may have become more generous with its wage concessions to the union.

Anderson concluded that the union achieved higher wages in the following conditions: (1) when unemployment was low; (2) demand for city services was high; (3) it was a municipal election year; (4) per capita mandays lost due to strikes were greater; (5) the local union was autonomous of task environment support; (6) a mayor-council governmental form existed; (7) the negotiator was not professionally trained as a negotiator; and (8) internal conflict was low. The union was able to achieve greater nonwage outcomes when (1) ability to pay was low, (2) demand for city services was high, (3) the major industry in the city area was manufacturing, (4) strike activity was low, (5) there was support from the task environment, (6) commitment to the industrial relations function was low, and (7) the negotiator was not professionally trained as a negotiator. Of particular importance, there was only minimum overlap of predictors for both wage and nonwage bargaining outcomes, suggesting that trade-offs between wage and nonwage items may have occurred systematically in collective bargaining.

Anderson was able to explain considerable variation in both wage and nonwage bargaining outcomes. For the three wage equations, coefficients of determination ranged from the figures ranged from .63 to .75.

These three particular studies represented a significant departure
from the way in which bargaining power and bargaining outcome studies had
been conducted, to date. The major advantage to all of them was the use
of comprehensive measures of the outcomes of collective bargaining. The
first two employed total contract index scores. Anderson's contribution
was clearly in his examination of the potential for trade-offs between
wage and nonwage bargaining outcomes in collective bargaining. These
public sector studies laid the groundwork for the more comprehensive
private sector studies which followed.

Private Sector Studies

Thomas Kochan and Richard Block combined the methodology for as-
sessing bargaining outcomes (developed in the public sector) with the more
traditional explanatory variables normally associated with the private
sector in the most comprehensive research effort on the outcomes of col-
lective bargaining published prior to the mid-1980's.[108] The authors
constructed an overall index of bargaining outcomes plus five subindices
based upon the job-related goals of workers, a topic closely associated
with worker job satisfaction. Kochan and Block used (1) wage supplement
provisions, (2) fringe benefit provisions, (3) working conditions pro-
visions, (4) job security provisions, and (5) equity in administration
provisions to reflect five major areas of job satisfaction which contracts

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[108] Thomas A. Kochan and Richard N. Block, "An Interindustry Analysis of
Bargaining Outcomes: Preliminary Evidence from Two-Digit Indus-
tries," Quarterly Journal of Economics, XCI, 3 (August, 1977),
431-452.

ordinarily address. A total contract index was formed by summing the individual scores for each of the five subscales.

Each of the contract provisions received a score of zero if it was missing in the contract or if it was the least favorable outcome. The most favorable outcome was rated a 10. Intermediate categories received intermediate values such that equal intervals existed between categories of a provision.

Observations were taken from 31, two-digit industries for manufacturing in the U.S. The study employed economic and institutional characteristics as sources of power, as well as several controls. The authors felt that these were typical sources that unions could draw upon in the collective bargaining relationship. Total contract index scores and each of the five subscale scores were regressed on the set of economic, institutional, and control variables.

Several forms of statistical analysis were employed. First, correlations were run for the total index score and each of the five subscales. The economic sources of bargaining power demonstrated stronger relationships with wage, wage supplements, and fringe benefits than with the other indices of bargaining outcomes. This was not a particularly surprising result; however, it did point to a need to include other than economic predictor variables in studies of bargaining outcomes. Conversely, the institutional sources of bargaining power demonstrated a consistent correlation across all the components of bargaining outcomes.

Since the sample size was small and thus predictions were not felt to be appropriate, Kochan and Block used regression analysis to describe more completely, the relationships which demonstrated significance in

correlation analysis. By regressing wages and the five sub-scales on various combinations of the independent variables, the authors discovered that the concentration ratio and strikes per production employee were the most powerful predictors, with concentration most closely associated with financial outcomes (pay and fringe equations).

Strikes, an institutional source of power, were consistently correlated across all categories of contract provisions with the strongest regression coefficient for working conditions (72 percent of variation in working conditions was accounted for by strikes per production employee). While the relationship between strikes and working conditions seemed a bit surprising, Kochan and Block felt that it may have applied to the area of "management rights" which provided antagonism between the union and the employer over some aspects of the conditions of work. Of particular importance, the best prediction model employed both institutional and economic variables to describe bargaining outcomes.

In the regressions, which included only concentration and strikes per production employee, a moderate amount of variation was explained in the five subindices. The coefficients of determination ranged from .44 for job security to .60 for fringes. When these two variables were used to explain wages, the coefficient of determination was only .27.

Peter Feuille, Wallace Hendricks, and Lawrence Kahn[109] extended the work of Anderson.[110] They explored the extent of trade-offs between wage

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[109] Peter Feuille, Wallace E. Hendricks, and Lawrence M. Kahn, "Wage and Nonwage Outcomes in Collective Bargaining," Journal of Labor Research, II, 1 (Spring, 1981), 39-53.

[110] Anderson, "Bargaining Outcomes: An IR Systems...."

and nonwage bargaining outcomes and explained the determinants of both wage and nonwage bargaining outcomes. Regressions were run for both wage and nonwage bargaining outcomes on a series of union power, employee quality, union preference, and employer cost variables. Feuille, et. al, also used a contract index adopted from Kochan and Block based upon a favorable-to-union scale.[111]

Data were from "key" contracts on file with the BLS for 1975 observations in U.S. manufacturing. Wage data were hourly wages of janitors and unskilled laborers. This sample was employed because these were the only occupations which included information for all of the variables tested. The final sample contained 505 agreements for which a match was possible between contract scores, wage data, and predictor variables.

Feuille, et. al, employed several major groups of predictors. These groups were comprised of bargaining power, union rivalry/preference, personal characteristics, and geographic location. Year of initial contract was included to control for the possibility of "front loading" of initial contracts with wages in negotiated settlements.

Results were divergent from Anderson's. Anderson found that wage and nonwage bargaining outcomes were practically unrelated to one another, perhaps a characteristic peculiar to the Canadian public sector environment. Feuille, et. al, found that "unions in powerful bargaining positions are able to generate favorable outcomes across a wide range of employment conditions while unions in less advantageous bargaining posi-

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[111] Kochan and Block, "An Interindustry Analysis...."

tions are not able to deliver either high wages or good contracts."[112] Moreover, as union power increased, the ratio of nonwages to wages decreased. This implied that union power tilted the compensation package relatively more toward wages than nonwage provisions.

Of the structural variables, multifirm bargaining units tended to tilt the compensation package toward wages. Percent male also tilted the compensation package toward wages. The authors felt that this may have indicated a female preference for control over items not included in wages, such as work schedules. Unions composed of more experienced employees negotiated contracts weighted more in the nonwage direction than for wages. Finally, both wages and nonwage bargaining outcomes were significantly affected by bargaining unit size, percent male, urban residence, and residence outside the South.

Feuille, et. al, were able to explain a moderate amount of variation in their dependent variables. For the regression on wages, the coefficient of determination was approximately .62. For the regression on nonwage items, the estimate was approximately .50. For the regression which used a dependent measure of wages as a ratio of nonwage items, the coefficient of determination was not provided.

Summary of Bargaining Outcomes Research

Traditional research on bargaining outcomes included only those negotiations items which could be quantified, such as wages and fringe benefits. The studies reviewed in this section provided innovative

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[112] Feuille, et al, 47.

techniques by which a full range of contract items could be quantified. This made it possible to estimate the full impact of bargaining power on collective bargaining.

This body of literature included both public sector and private sector studies. Public sector studies were not reviewed for the purpose of public-private comparisons. Given the considerable differences in both sectors, comparisons would have been quite difficult.[113] Rather, they were used to demonstrate the similarities in the way bargaining outcomes were measured.

The most comprehensive measure of collective bargaining outcomes is that of Kochan and Block representing a synthesis of virtually all of the research done on the topic up to that time.[114] The measure included five subscales with each subscale represented by a number of contract items or provisions. Each of these contract provisions was evaluated on its degree of favorableness to the union. Subscale scores were derived by summing the values of all observations for each contract provision in each subscale. Subscale scores were then summed to form a composite or total bargaining outcomes index score. The scale employed by Feuille, et. al, was a refinement of Kochan and Block's work and included a greater number of bargaining issues; however, Feuille, et. al, split total bargaining outcomes into two measures: wage and nonwage items.[115]

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[113] Peter Feuille, "Police Labor Relations and Multilateralism," Proceedings of the Twenty-Sixth Annual Winter Meeting, Industrial Relations Research Association (Madison, WI: IRRA, 1974), 173.

[114] Kochan and Block, "An Interindustry Analysis...."

[115] Feuille, Hendricks and Kahn, "Wage and Nonwage...."

Comparison of results between the Kochan and Block and Feuille, et. al, studies was somewhat difficult. The list of independent variables used by Feuille, et. al, was strongly reminiscent of the studies of wage determination which traditionally included measures of human capital and personal variables. Kochan and Block broke with tradition. They employed a number of productivity and "attitudinal" variables which were not present in the work of Feuille, et. al.

One major area in which comparison was possible was that of bargaining power. Although neither study grouped these variables exactly the same, most of the variables which Feuille, et. al, referred to as representing bargaining power predicted in a similar fashion with those of Kochan and Block. For example, in both studies, concentration and degree of labor intensity tended to be more closely associated with wages and financial bargaining outcomes than with nonfinancial bargaining outcomes.

Kochan and Block and Feuille, et. al, differed on other important, traditional predictors, such as unionism, establishment/firm size, and strikes. Unionism, which was the only consistent predictor across all studies thus far, was included in Feuille, et. al, as a bargaining power variable with the same results as that for concentration and degree of labor intensity. In the Kochan and Block study, unionism did not reach significance even in correlational analysis. Firm/establishment size was not employed in Kochan and Block's study, whereas it predicted wage and nonwage outcomes equally well in the Feuille, et. al, study. Finally, Kochan and Block employed measures of strike activity, the "standard" for

bargaining power, and Feuille, et. al, did not. Strikes had a pervasive impact on the full range of bargaining items in Kochan and Block's work.

The studies by Kochan and Block and Feuille, et. al, represent the only private sector research projects which employed comprehensive bargaining outcomes as dependent variables prior to the mid-1980's. Major differences in variable specification made comparisons difficult and external validity was weak for that reason. It was not possible to tell if the divergent results were due to differences in their samples or an artifact of variable specification. The major limitations of research which have dealt with various collective bargaining outcomes are discussed below.

Limitations of Bargaining Outcomes Research

The greatest bulk of research done on bargaining outcomes, per se, has included many of the same explanatory variables and sources of data. Accordingly, they share many of the same strengths and weaknesses. It was important to make note of limitations to this body of literature so that problems are not perpetuated in future research.

The first limitation, and probably most important, is the measurement of variables at inappropriate levels of analysis. In U.S. manufacturing, bargaining structure varies; however, most bargaining is strongly decentralized and occurs at single plant bargaining units. Therefore, variables which one hopes will explain the relationship between bargaining power and bargaining outcomes must be measured at the level at which bargaining actually takes place.

Virtually all existing studies have used some industry-level data which needed to be disaggregated to be meaningful in a statistical sense. Many studies used _only_ industry or occupational averages to measure all variables, regardless of the level at which bargaining took place. A strong probability exists that industry or occupational data were used and disaggregated because they were relatively easy to obtain. The Bureau of Labor Statistics, Bureau of the Census, Census of Manufacturers, etc. had computer tapes with easily accessible information amenable to statistical manipulation.

To exemplify this limitation, consider the example of the "extent of unionism" variable. Extent of unionism has been _the_ major explanatory variable in all studies of bargaining outcomes. It has been measured by: (1) percentage of employees in the industry covered by collective bargaining agreements; (2) percentage of employees in the industry who were union members; (3) percentage of employees in establishments that had more than 50 percent of workers covered by collective bargaining; (4) percentage of employees in an establishment who were union members; (5) a dummy variable for studies which asked individuals to indicate whether they were union members or not.

The method of measurement should correspond to a particular level of analysis. The level of analysis pertains to the unit about which you wish to make generalizations. For example, methods (1) and (2) are more suitable for _industry_ level generalizations about bargaining outcomes. Methods (3) and (4) are more approprate for firm or _establishment_ level generalizations. Method (5) is appropriate for generalizations about _individual_ union members. Often, each of these measures of extent of

unionism have been used at inappropriate levels of analysis, making gen-
eralizations about the union impact on bargaining outcomes questionable.

Second, not only did studies use improper levels of analysis, but
frequently these levels were somewhat artificial. Often, different data
sources were "pooled" from different years or from different industrial
classifications (SIC codes) to achieve a common level of analysis. Rarely
were variables introduced representing different years or different in-
dustries to control for pooling. Conceptual problems may have prevailed
when pooled data were used even after controls were introduced.

Third, variables were measured quite differently even when they were
gathered at the same level. For example, wages, which were the major
dependent variable in studies of bargaining outcomes, were measured in a
number of different ways. They included (1) average hourly wages, (2)
real wages, (3) usual hourly earnings, (3) wages plus any cost of living
provisions, and (4) usual weekly earnings divided by usual weekly hours.
This list is not exhaustive. Such differences make comparisons across
studies difficult.

Fourth, most studies of wage determination have concentrated on
manufacturing which was the most highly unionized sector in the economy
and which was the only sector for which concentration ratios were com-
puted. The vast majority of these studies looked only at key firms, those
with 1,000 employees or more. This certainly did little to explain most
union behavior since most unions were considerably smaller. It guaranteed
the researcher that many of the features associated with unionism, such
as firm size, concentration, wages, and so forth, were represented.

Again, these data sets were probably selected for convenience. They did

not reflect what one expected of union-management relations, in general.

Fifth, very few studies measured either dependent or independent

variables over time. Virtually all of the bargaining outcomes studies

were cross-sectional. That is, they represented a static or "snap shot"

picture of the bargaining relationship. Even though "lagged" variables

have been used for some predictors, most studies do not reflect the dy-

namics of labor-management relations.

Finally, most studies were able to predict only a moderate amount

of variation in the dependent variables. This may have been the result

of many of the foregoing limitations. It demonstrates a need to address

these limitations before the search begins for a new set of predictors.

In summary, a number of problems plagued research on bargaining

outcomes which future research should address. It is important to measure

bargaining power and other explanatory variables at the level at which

bargaining occurs. Moreover, variables should reflect actual organiza-

tional and bargaining process activities which impact collective bar-

gaining at the bargaining unit level. Variables should be specified which

can be measured consistently across establishments in the study. More-

over, both dependent and independent variables should be measured in a

longitudinal fashion to reflect the dynamics of the bargaining relation-

ship. Finally, controls should be included uniformly in future research

for those variables which demonstrate external validity over time.

General economic conditions, which have consistently affected union

bargaining behavior may play an important role in this study. Concession

bargaining which occurred largely in response to a long period of economic

decline, drew attention to a new set of explanatory variables in the outcome of collective bargaining. For example, threats of layoffs, plant closing, bankruptcy, etc., may have been important determinants of bargaining outcomes during the period of analysis in this study. These issues are addressed in the following section on concession bargaining.

Concession Bargaining

The history of events in U.S. labor-management relations since 1979 was conspicuous because of the prevalence of concession bargaining. Variously termed "give backs" or "roll backs," concessions were tangible negative changes in the outcomes of collective bargaining for unions. Concessions took essentially two forms. The most serious form involved giving back to the employer wages, fringe benefits, and work rules which had been won during previous negotiations and codified in the labor-management agreement. A second form involved foregoing future wage, fringe benefit or work rule gains which _might_ have been secured in future negotiations. Thus, present or future union benefits may be given back or foregone to assist the firm in its attempt to survive.

The round of concession bargaining which began in 1979 was of particular importance for this study. First, any study which hoped to assess _changes_ in bargaining outcomes realistically covered at least a six-year period. The most common duration of collective bargaining agreements in U.S. manufacturing for this period was 3 years. Those contracts which expired in 1984 were matched with comparable contracts initiated in 1979 or later.

Second, the period of economic slack which began in 1979 was still present in 1982, unlike the earlier recession of 1973-75 in which contracts which were negotiated in 1973 and 1974 found clear signs of recovery as they approached expiration.[116] Moreover, both unemployment and inflation were high, signaling a failure of public policy guidelines to ease stagflation.[117]

A number of industries and firms were faced with increased foreign and domestic competition. The former was most pronounced in autos, steel and electronics. The latter was exemplified by increased use of nonunion labor and deregulation of some industries such as the airlines, trucking and communications.[118]

In many industries, especially meatpacking, autos, and steel, the threat of bankruptcy, plant closings, and layoffs created the need for a "retrenchment strategy" on the part of unions. The delitorious effects of employment loss on workers are well documented.[119] Generally, plant

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[116] Daniel J.B. Mitchell, "Recent Union Contract Concessions, Brookings Papers on Economic Activity 1 (NY: Brookings Institution, 1982), 175-189.

[117] Robert J. Flannagan and Daniel J.B. Mitchell, "Wage Determination and Public Policy," in Industrial Relations Research in the 1970's: Review and Appraisal, eds. Thomas A. Kochan, Daniel J.B. Mitchell, and Lee Dyer (Madison, WI: IRRA, 1982), 80.

[118] William E. Fulmer, "Contract Reopening: Issues and Relationships," Proceedings of the Thirty-Fifth Annual Meeting, Industrial Relations Research Association (Madison, WI: IRRA, 1982), 402.

[119] J. John Palen and Frank J. Fahey, "Unemployment and Reemployment Success: An Analysis of the Studebaker Shutdown," Industrial and Labor Relations Review, 21, 2 (January, 1968), 234-250; James L. Stern, "Consequences of Plant Closure," Journal of Human Resources, VII, 1 (Winter, 1972), 3-25; Barry Bluestone and Bennett Harrison, The Deindustrialization of America: Plant Closings, Community Aban-

closings result in protracted unemployment following displacement, loss of earnings (which can rarely be recouped), and low geographic mobility. The effects generalize well across communities of different sizes, variable rates of unemployment, and both capital and labor intensive firms. Those persons who are blue-collar, lower skilled, older, and minority group members tend to be affected the worst. A study by Walter Strange portrays an individual's psychological reaction to a major plant closing as quite similar to "mourning behavior" following the death of someone intimately close.[120] This effect was particularly marked for long-term employees, many of whom had never worked for another employer.

Where threats to union member employment security were perceived as real, unions agreed to bargaining concessions in record proportions. The major concessions made by unions were wages,[121] with the most common

donment, and the Dismantling of Private Industry (New York: Basic Books, 1982), 48-91; and Nancy R. Folbre, Julia L. Leighton, and Melissa R. Roderick, "Plant Closings and their Regulation in Maine, 1971-1982," Industrial and Labor Relations Review, 37, 2 (January, 1984), 185-196.

[120] Walter G. Strange, Job Losses: A Psycho-Social Study of Worker Reactions to a Plant Closing. Unpublished Ph.D. dissertation, Cornell University, 1977, University Microfilms, Ann Arbor, MI.

[121] In many of the larger firms which had long-term contracts with unions, COLA clauses existed. Adjustments to COLA relationships ranged from no increase, to reduction, to elimination altogether, with the more drastic actions taken in the more distressed firms. Daniel J.B. Mitchell, "The 1982 Union Wage Concessions: A Turning Point in Collective Bargaining?" California Management Review, 25, 4 (Summer, 1983), 78-92.

tradeoff scenario involving the company's decision to postpone plant

closings and layoffs in exchange for wage roll backs.[122]

In periods of protracted economic slack such as was experienced be-

tween 1979 and 1984, controlling costs through wage and fringe roll backs

seemed preeminent; however, this situation also resulted in intensified

efforts by employers to "negotiate changes in work practices that lower

costs and/or increase productivity."[123] More flexible work rules allowed

the employer greater discretion in reaching their cost and productivity

objectives.

The 1982 round of collective bargaining provided some examples of

work rule adjustments which were fairly typical. In the Master Freight

Agreement, over-the-road truckers made local stops for pickups when they

had less than full loads. This was work that was previously assigned to

"local" drivers. In the airline industry, at least 39 bargaining units

within the 18 major unionized carriers agreed to changes in work rules

as a result of collective bargaining in 1982. For pilots, in particular,

changes in crew sizes and scheduling provisions were accepted in exchange

for job security protection.[124]

Except for the most distressed industries, unions were able to

maintain a semblance of parity by securing countervailing promises from

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[122] D. Quinn Mills, "When Employees Make Concessions," Harvard Business
Review, 61, 3 (May, 1983), 104.

[123] Thomas A. Kochan and Harry C. Katz, "Collective Bargaining, Work Or-
ganization, and Worker Participation: The Return of Plant-Level
Bargaining," Proceedings of the Spring Meeting, Industrial Relations
Research Association (Madison, WI: IRRA, 1983), 527.

[124] Mills, 105.

the employer, mostly regarding job security. Some of the tradeoffs included among the key industries were: (1) reduction of managerial salaries and bonuses in proportion to union member roll backs; (2) supplemental unemployment benefit plans (SUBs) to cover layoff and plant closing contingencies; (3) stock ownership and profit-sharing plans to delay/divert direct labor cost payments and encourage productivity awareness; (4) plans to increase employee involvement in company decisions; (5) employee "buyouts" of the distressed firms; (6) sharing of company financial information with the union to verify the company's position and assist the union in future bargaining espisodes; (7) extension of health insurance to laid-off employees; (8) prepaid legal services; (9) strengthened severance pay plans; and (10) employee rights to transfer from closed plants to new plants or plants in the firm which were operating elsewhere. [125]

One major consequence of the conditions which created the 1982 rounds of concession bargaining was the breakdown of pattern bargaining. [126] Industries and firms which had traditionally set wages by imitating the wage

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[125] Warner Woodworth, "Collective Bargaining: Concessions or Control?" Proceedings of the Thirty-Fifth Annual Meeting, Industrial Relations Research Association (Madison, WI: IRRA, 1982), 418-424; Peter Cappelli, "Union Gains Under Concession Bargaining," Proceedings of the Thirty-Sixth Annual Meeting, Industrial Relations Research Association (Madison, WI: IRRA, 1983), 300-302; Peter Cappelli, "Concession Bargaining and the National Economy," Proceedings of the Thirty-Fifth Annual Meeting, Industrial Relations Research Association (Madison, WI: IRRA, 1982), 362-371; and Wayne R. Wendling, "Collective Bargaining Over Plant Closure," Proceedings of the Thirty-Fifth Annual Meeting, Industrial Relations Research Association (Madison, WI: IRRA, 1982), 410-417.

[126] Audrey Freedman and William E. Fulmer, "Last Rites for Pattern Bargaining," Harvard Business Review, 60, 2 (March-April, 1982), 30-48.

settlement of the leading firm within their industry or across industries (pattern bargaining), broke away, setting wages to accommodate their particular financial needs. On an intra-industry basis, for example, American Motors and more recently, Chrysler, moved away from the wage pattern set by negotiations between the United Auto Workers (UAW) and the industry wage setter. For the 1982 set of negotiations, General Motors was selected by the UAW as the target wage setter.

Whereas wages and fringes were generally negotiated in conference board bargaining for industries (such as autos, steel, trucking and rubber) which engaged in pattern bargaining, work rules, which reflected local working conditions, were traditionally forged at the local or plant level. The break down of pattern bargaining caused a more complete bargaining agenda at the plant-level for those who moved away from master agreements with additional benefits accruing to the employer. For example, the ultimate union weapon, the strike, was affected in at least two ways:

1. Management can more easily shift production from plants that are on strike to plants that are no longer part of a master agreement and therefore not on strike. Moreover, companies will be more willing to close marginal plants permanently than to take a long strike.

2. Thus, the union's power was eroded not only because it could not se-
cure wage and fringe benefit increases from the employer, but the
threat of the strike was considerably diminished. [127]

Most of the empirical studies conducted on the issue of concession
bargaining concentrated on key bargains and Fortune 500 companies which
were unionized. Little is known about unionized firms which were smaller
or which had less centralized bargaining structures. The larger firms
and unions received the lion's share of publicity; however, it was felt
that concessions were fairly widespread, even if parity was relatively
less prevalent among smaller firms which bargained at the plant level or
with single-plant firms. The following is a summary of Chapter Two.

Chapter Summary

Chapter II noted the development of a body of literature which fo-
cused on the measurable outcomes of collective negotiations between the
union and the employer. Studies began with research on the effects of
bargaining power on wage determination, progressed to include both wage
and fringe benefit determination, and moved to a comprehensive measure
of both financial and nonfinancial bargaining outcomes. The list of in-
dependent variables representing sources of bargaining power which were
used to explain variation in these bargaining outomes did not change
substantially over the 20 plus years covered by the literature review.
These independent varables are generally grouped in four categories -

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[127] Freedman and Fulmer, 44.

demographics/personal, labor market, product market, and general economic
conditions. Each group is discussed briefly below.

Demographics

Demographic, or personal variables, relate specifically to the
characteristics of the workforce. These were employed in all studies to
some extent. In general, research results indicated that older white
males tended to benefit most from unionism. This was also true for lower
skilled, less well-educated workers who had more work experience. Head
of household status, urban residence and residence anywhere but in the
South are demographics which consistently exhibited a positive relation-
ship with wage levels and wage differentials. Employee age, urban resi-
dence and non-South residency were also associated with higher levels of
fringe benefits. For the more comprehensive bargaining outcome research,
employee age, experience, education, and female gender are positively
associated with nonwage bargaining outcomes. Male gender was associated
with higher levels of both wage and nonwage bargaining outcomes. Resi-
dents in rural and in southern states tended to have lower levels of both
wage and nonwage bargaining outcomes.

Labor Market Variables

Of the few studies which dealt with labor market competition most
were concentrated in wage level research. Durable goods industries,
compulsory union membership, and local labor market wage criteria were
associated with higher wage levels. Bargaining structure exemplified
mixed results. Theory held that industry-wide bargaining structure re-
sulted in favorable bargaining power for unions when compared with

plant-level bargaining. This relationship was confirmed in one wage level study and not confirmed in another. Results were contradictory for the one total bargaining outcome study which included bargaining structure. Multiplant bargaining structure, which was predicted to result in the most favorable union effects, had an opposite impact.

Product Market Variables

Most studies have addressed the firm's ability to compete in its product market, resulting in some fairly consistent findings for the following sources of power. Unionism has been the only variable to exhibit a consistently strong positive relationship with all wage and fringe benefit outcomes. Results are mixed for total bargaining outcomes research. Unionism was nonsignificant in Kochan's study and in the Feuille, et. al. study, it tended to tilt the compensation package towards wages.

Concentration, a proxie for product market monopoly, was complex. It was generally positive with wage levels and differentials, but tended to interact with the extent of unionism. Several studies found a nonlinear relationship between concentration and wages. Like extent of unionism, concentration was associated more with wages when considering total bargaining outomes.

Labor intensity has exhibited a consistently negative relationship with wage levels and with compensation in total bargaining outcomes research. Firm size predicted higher levels of wages and fringe benefits. For the more comprehensive studies, firm size predicted wage and nonwage bargaining outcomes equally well.

Strikes have demonstrated a strong positive relationship with wage levels. Strike duration also was associated with higher levels of wages. Of the two studies which used total bargaining outcomes, only one measured the impact of strikes. Strikes exhibited a strong positive relationship with the full range of bargaining items.

General Economic Conditions

Studies of wage determination and fringe benefit determination pointed to the moderating effects of general economic conditions. Union members were insulated more from periods of economic contraction because of built-in cost of living adjustments in union contracts. During periods of rapid economic expansions, union wages, in general, did not rise as fast as nonunion wages. Union leaders recognized that tradeoffs were necessary between higher wages and employment.

The period from 1979 to 1984 represented a particularly disruptive period in the U.S. economy. Economic adversity caused an unusually high rate of layoffs, plant closings, and bankruptcies, all of which threatened employment security for union members. Labor unions were forced to make concessions to the employer in record proportions to help the employer and unions survive.

Collective bargaining became more decentralized during this period with greater reliance being placed on local labor market conditions in the setting of wages and other bargaining outcomes. Moreover, unions lost bargaining power as the strike threat dissipated more with decentralized bargaining structures. All in all, the six-year period of interest wit-

nessed a considerable shifting of the "balance of (bargaining) power" in contract negotiations which favored the employer.

Chapter Three, which follows, attempts to overcome some of the limitations of past research on various bargaining outcomes. In Chapter Three, a model is developed linking bivariate relationships between selected sources of bargaining power and total bargaining outcomes. Research hypotheses are articulated regarding these linkeages, and the methodology for data collection is outlined.

CHAPTER III

A RESEARCH MODEL, HYPOTHESES AND METHODOLOGY

Introduction

This chapter has four major objectives. First, a model of the re-
lationship between sources of bargaining power and bargaining outcomes
in the open shop environment is outlined. Second, specific research hy-
potheses are developed from the model to test the validity of the bi-
variate linkages between individual sources of bargaining power and
bargaining outcomes. Third, the methodology for the collection of data
used in analysis is detailed. This includes the technique used to assign
numerical values to contract items as well as the method by which changes
in collective bargaining outcomes are outlined. Finally, the plan for
statistical analysis is revealed. Where applicable, rival hypotheses
have been evaluated against those chosen for this study.

A Model of Power Sources Affecting Collective Bargaining Outcomes

Selection of the Variables

The review of collective bargaining outcome literature in the pre-
ceding chapter identified several categories of variables which have been
consistently related to various measures of bargaining outcomes. These
categories were: (1) demographics, (2) labor market, (3) product market,
and (4) general economic conditions. The criteria to select variables
from among these categories were as follow.

1. variables could be measured at the manufacturing plant level where
   observations were drawn for this study;

2. the variables had been consistent, traditional predictors of various bargaining outcomes; and which

3. reflected the 1979-85 era of concession bargaining experience in labor-management relations.

Based upon a pilot study, variables were excluded from the model which:

1. despite their existence at the plant level, were unavailable; and

2. despite their availability, resulted in guessing or respondent unwillingness to provide data.

In the first condition confidential data apply. Most respondents could not share financial data. This data would have been helpful in assessing the employer's "ability to pay" for negotiated wage and non-wage union demands.

In the second condition respondents may be unwilling to expend considerable resources necessary to secure data, some of which is deeply embedded in plant records. For example, this might include detailed layoff data (number of layoffs, number of employees layed off each time, and both broken down by cause, i.e., product demand vs technological changes). This would also include the degree of change in plant workload due to intra-firm plant closure experience. Along these same lines, securing data on union chief negotiator experience would be quite difficult and time consuming, often requiring communication with union officials outside the plant environment.

Even when data may be somewhat easier to secure, guessing or "ball park" estimates may be problematic for data collection. An example of a variable eliminated because of guessing was the number of contracts ne-

gotiated over the life of the labor-management relationship with the current local union. Similarly, the number of strikes over this same period was excluded because of the likelihood of guessing.

Once variables were included or eliminated based upon the foregoing criteria, a research model was devised to relate the selected explanatory variables representing bargaining power to collective bargaining outcomes. The conditions for the model are outlined below.

Conditions of the Model

Figure 1 is a diagrammatical representation of the sources of bargaining power selected for this study which affect collective bargaining outcomes. The concept of bargaining power here assumes the union perspective. That is, the model depicts conditions which either enhance or inhibit the union's exercise of bargaining power. The union is the logical focus of study because in the absence of the local union, management's power is relatively greater.

The model is comprised of three categories. The first two categories highlight the areas in which the union and the employer typically exercise relatively greater discretion or power over the outcomes of collective bargaining. In the first, union power is represented by three influential conditions - union militancy, union strength and decertification attempt. In the second, product market competition is represented by three conditions in which the employer may exercise relatively greater influence -

VARIABLE CATEGORY	SOURCES OF POWER	BARGAINING OUTCOMES

Union Power·

Union Militancy
Union Strength
Decertification Attempts

Product Market Competition

·Bargaining Unit
 Employment Loss
Plant Closure ·
 Communications
Labor Intensity

Control

Bargaining Structure
 (held constant)

Area Unemployment
 Rate

Collective Bargaining Agreements
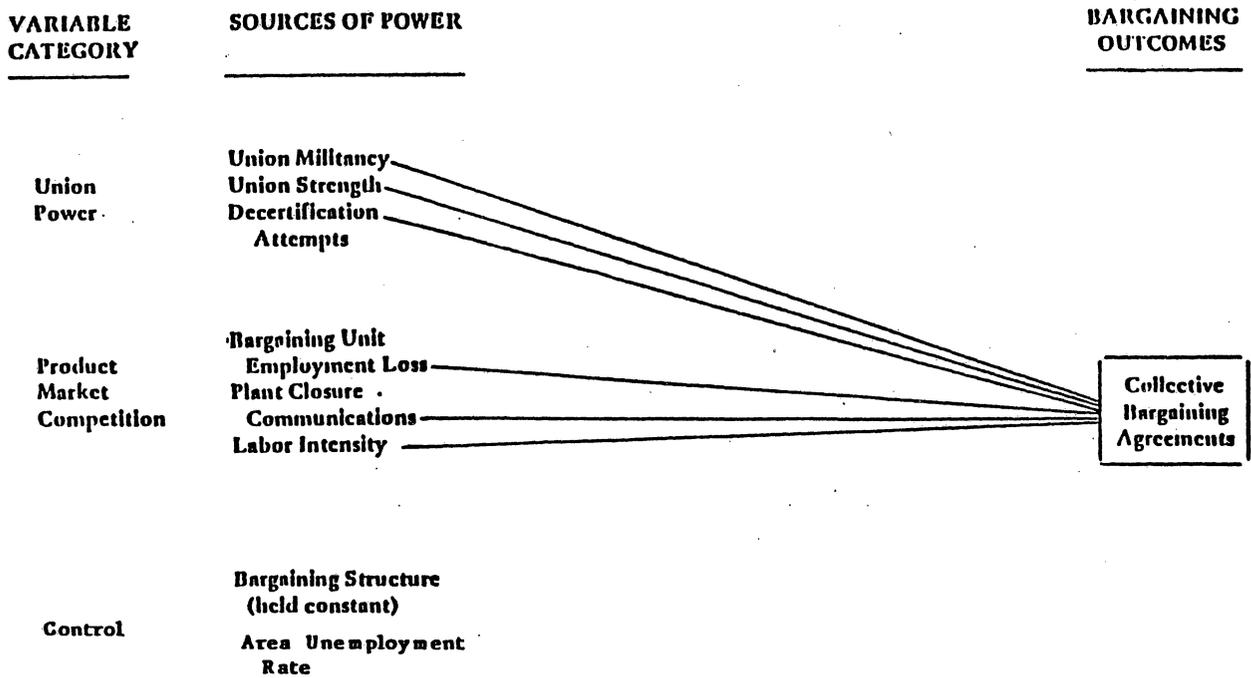
Figure 1. Sources of Power Affecting Collective Bargaining Outcomes.

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layoffs, plant closure communications, and degree of labor intensity. In the third, two control variables are employed. Bargaining structure is held constant in that only plants which negotiate at the plant level are used.[128] For one set of hypotheses dealing with the effects of layoffs on bargaining outcomes, the unemployment rate of the local labor market is also used as a control variable. These are minimal considerations in the dynamics of collective bargaining leading to contracts that are more or less favorable to the union constituency.

The model identifies sources of bargaining power as they occurred or changed from one contract period to the next to determine the extent to which power explained changes in bargaining outcomes. The explanatory variables under union power and product market competition were tested directly against contract items as objective evidence of bargaining outcomes.

Although each condition of bargaining power may have explained a particular dimension of bargaining outcomes better than other dimensions, the model tested only total bargaining outcomes. Bargaining outcome dimensions, which are groups of contract items dealing with specific topics (i.e., working conditions or fringe benefits) are not theoretically linked in the literature to the traditional conditions of bargaining power. Thus, for this exploratory study, conditions of bargaining power are related only to the total contract and not specific groups of items within the contract. Total bargaining outcomes were also assessed to

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[128] Bargaining structure depicts the various levels at which bargaining units exist.

avoid problems of reliability which may have been problematic for the subscales.

No studies have examined changes in either total bargaining outcomes or specific dimensions of bargaining outcomes. This study partially corrects this limitation by measuring changes in total bargaining outcomes from one contract to the next.

The explanatory variables were treated as exogenous; that is, their variability was assumed to be determined outside the model. The model was assumed to be linear. Thus, curvilinear and multiplicative relations were excluded. Furthermore, the model was recursive - the causal flow was treated as unidirectional. The assumption of linearity and direction of causality was derived from previous research which employed multiple regression to test similar relationships.

For purposes of analysis, three points in time were used to establish two relevant time periods so that changes in explanatory variables could be assessed as well, where applicable.

$$T(1) = \text{beginning of Contract A}$$

$$T(2) = \text{end of Contract A}$$

$$T(3) = \text{beginning of Contract B}$$

$T(1)$ - $T(3)$ represents a stable period of labor-management relations, consummated by a labor contract. Given the nature of collective bargaining and the inherent conflict, $T(2)$ and $T(3)$ may not be equal. Where $T(2)$ and $T(3)$ are not equal, an impasse between labor and management in collective bargaining occurred. Contract extensions were treated as part of $T(1)$ - $T(3)$. Multiple periods were particularly useful in the specification of research hypotheses articulated in the next section.

Research Hypotheses

Hypotheses are used to explain the manner in which sources of power depicted in the model are linked with changes in bargaining outcomes. The hypotheses are couched in terms of the degree or extent of favorability to the union that each explanatory variable demonstrates with changes in bargaining outcomes.

In all cases, the dependent variable, changes in bargaining outcomes, was measured by comparing total bargaining outcomes at T(1) with total bargaining outcomes at T(3). Moreover, changes were represented as _percentage changes_ using the following formula:

$$\frac{BO\ T(3)\ -\ BO\ T(1)}{BO\ T(1)} \times 100 = \%\ \text{change}^{129}$$

where: BO = bargaining outcomes

Explanatory variables representing union power were addressed first.

Union Power

Union power has most often been treated as if it was the only power relating to bargaining outcomes. Although bargaining power is a relative concept as between labor and management, union bargaining power was stressed in the model because unions attempt to achieve outcomes for workers beyond what would normally be expected, on average, if employees negotiated individually with an employer. That is, a differential in wages, hours, and other terms and conditions of employment is assumed to exist for unionized employees relative to nonunion employees _because_ un-

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[129] For each variable in this study which is measured as a change, a _percentage change_ is used to establish relative values for analysis.

ion power is exercised.   Within the union power category, three major

issues are addressed: union militancy, union strength and union decer-

tification attempts.

Union Militancy

Union militancy is a central concept in the adversarial relationship

between labor and management.   It can occur at any point during the re-

lationship and may take several forms.[130] The strike has been the most

frequently studied form of union militancy, particularly in research on

wage determination and bargaining outcomes.

While the occurrence of strikes over the history of the relationship

between labor and management may set a tone for bargaining expectations,

the strike "threat" surrounding collective bargaining in mature settings

should have a more significant impact on bargaining outcomes.   In this

study, however, variables can only be measured in an a posteriori fashion,

thereby making impossible their ability to predict.   Thus, the actual

occurrence of a strike is the object of concern in this study, as it

constitutes observable and measurable union behavior.

Strikes have been measured in several ways: (1) strike frequency,

(2) strike duration, (3) mandays lost due to a strike, and (4) presence

or absence of a strike (dummy variable).   Following is a rationale for

the selection of the measures used in this research.

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[130] Union militancy may be work actions such as (1) productivity re-
strictions, (2) sabotage, (3) violence, (4) vandalism, and (5) mass
episodes of union members calling in "sick."   Strikes are the best
known and perhaps the most universally condoned form of union mili-
tancy.

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For this study, it was unlikely that a company experienced more than one strike between T(1) and T(3). Aside from a wildcat strike, which infrequently occurs in manufacturing, a strike should have occurred coincidental with collective bargaining. Wildcat strikes were not included in this study as measures of strike activity.[131] Thus, strike frequency is actually represented by strike occurrence.

With regard to strike duration, a potentially strong predictor of changes in bargaining outcomes exists. Strike duration may be more useful in its role as part of the worker-day lost approach, however. Worker-days lost is calculated by the number of persons in the plant who do not report for work each day, times the number of days of the strike espisode (duration). This is an important concept because the union's power can extend beyond the bargaining unit to affect the entire organization. Nonunion members and other plant employees outside the bargaining unit may be influenced by strikes and the potential for violence created by crossing picket lines. The closer the union can come to shutting down the employer over the period of the strike, the greater should be its power.

Results of a pilot study indicated that it was highly unlikely that strike records were kept by each employer. Moreover, there is no legal obligation to maintain strike records. It would be impossible to determine whether all of those persons not reporting for work during a strike were really sick or simply influenced by strike activity. Strike dura-

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[131] Wildcat strikes are not a part of normal power relations between the employer and the local union. These may not even be related to collective bargaining and constitute "outlier" conditions.

tion was the more likely candidate since even in the absence of records regarding strike activity, the personnel director could identify the number of days over which a strike occurred.

In this study, two measures of strikes are employed - strike occurrence and strike duration. First, the occurrence of a strike was expected to lead to greater net changes in bargaining outcomes for union members as suggested by the literature. This was measured by a dummy variable in which employers that experienced strikes were assigned a "one." Plants which had not experienced a strike were assigned a "zero." The following hypothesis addressed the impact of strike occurrence.

> H1(A): A positive relationship exists between strike occurrence during T(1) - T(3) and a percentage change in bargaining outcomes from T(1) - T(3).

Second, strike duration is an important concept only for employers which experienced a strike. Thus, strike duration was examined _within_ each sample of plants that reported strikes between T(1) and T(3). Strike duration was measured by the number of days over which the strike occurred, inclusive. The following hypothesis addressed the impact of strike duration:

> H1(B): For employers who experienced a strike, a positive relationship exists between number of strike days and a percentage change in bargaining outcomes between T(1) - T(3).

Union Strength

Regardless of the measure used, union strength has been the single greatest and most consistent predictor of bargaining outcomes to date. Not all of the measures of union strength have been sound theoretically,

as they have rarely reflected actual bargaining unit dynamics. Even individual union membership was inadequate when the dependent variable represented industry averages.

This study presented a unique opportunity to measure bargaining unit strength as it relates to actual bargaining unit dynamics. A sample drawn from an open shop environment provided an ideal situation in that variation in union strength can be related directly to bargaining outcomes at each bargaining unit. This test would not be possible in a union shop environment since union membership is compulsory for all employees in the bargaining unit.

In addition to those concerns noted in the literature regarding the importance of union strength to bargaining outcomes, the change in union strength surrounding the bargaining episode may be important. Withdrawal from the union may be most likely to occur during periods of stress that threaten earnings flow or job security, such as during a strike. This applies in all open shop environments since, when present in the contract, even maintenance of membership clauses allow members to resign just before the contract expires, a period which coincides with strike related stress. Without the strike threat, union power theoretically is diminished.

Quite apart from strike occurrence, the number of workers in the bargaining unit who are union members may change due to normal employee attrition and expansion. The number of employees in the bargaining unit may change due to voluntary and involuntary turnover, death, transfer, promotion, new hires, demotion, and layoffs. Consequently, the absolute number of union members, alone, is an inaccurate portrayal of union strength. Union strength must also reflect changes in bargaining unit

size. A ratio of union membership to bargaining unit size constitutes a more accurate measure of union strength at any given time. The general formula for union strength developed for this study is:

$$\frac{\text{\# union members}}{\text{\# bargaining unit members T(y)}} - \frac{\text{\# union members}}{\text{\# bargaining unit members T(x)}}$$

where: T(x) represents initial time period
        T(y) represents comparison time period

Whether the numerator, denominator, or both operate to change the union strength ratio, the percentage of bargaining unit members who are also union members is an important factor in the union's ability to secure favorable outcomes from management. The change in the union strength ratio from one point in time to another is represented as a _percentage change._ Following is the formula developed for this study to represent the percentage change:

$$\frac{\text{US T(y)} - \text{US T(x)}}{\text{US T(x)}} \times 100 = \% \text{ change}$$

where: US = union strength ratio
            T(x) = initial time period
            T(y) = comparison time period

Changes in union strength during the course of the first contract represent a distinguishable change in the power that the local union can muster in preparation for negotiations. Increases in union stength which generally symbolize greater confidence in the union should lead to more favorable collective bargaining outcomes. Decreases in union strength should lead to less favorable outcomes. The following hypothesis was tested to reflect the impact of changes in union strength on bargaining outcomes:

H2(A): A positive relationship exists between
a percentage change in union strength from
$T(1) - T(2)$ and a percentage change in
bargaining outcomes from $T(1) - T(3)$.

Changes in union strength can also occur during an impasse between
the local union and the employer. As in the immediately preceding hy-
pothesis these changes have implications for local union power and the
exercise of this power in relation to collective bargaining outcomes.
Increases in union membership during an impasse would represent an unusual
show of solidarity among bargaining unit members and a willingness, per-
haps, to "go the distance" against the employer. A decrease would be
expected to diminish the local union's bargaining power. The following
hypothesis was tested regarding the relationship between changes in union
strength during an impasse and changes in collective bargaining outcomes:

H2(B): A positive relationship exists between
a percentage change in union strength
from $T(2) - T(3)$ and a percentage change
in bargaining outcomes from $T(1) - T(3)$.

Union membership is somewhat less important up to the expiration of
the first contract $[T(1) - T(2)]$ than it is during a strike. If a large
number of union members resigned it would most likely happen during the
period $T(2) - T(3)$ in relation to an impasse. Accordingly, the following
research hypotheses was tested:

H2(C): The magnitude of the percentage change in
union strength from $T(2) - T(3)$ as it relates
to a percentage change in bargaining outcomes
from $T(1) - T(3)$ will be significantly greater
than the corresponding percentage change in
union strength from $T(1) - T(2)$.

Decertification Attempts

Union decertifications petitions and actual decertifications have

shown increases in recent years. Decertification <u>attempts</u> are most rel-

evant for this study since labor-management relationships which actually

endured were the targets for observation.

Decertification attempts may represent a loss of confidence in the

union's ability to do its job in the eyes of some bargaining unit members.

Attempts may range in behavior from informal meetings and discussions,

to formal petitions for decertification elections, to actual elections

to determine whether the union represents the interests of a majority of

union members.

No guidelines exist for the appropriate decertification activities

to include in analysis or for the appropriate weighting for such activ-

ities. Observing only those environments which have had formal attempts

would misrepresent, and perhaps understate, the impact of decertification

activity. There is undoubtedly decertification activity which never re-

aches a formal level. In this study, a full range of activities was in-

cluded.

This range of decertification activity also implies an escalation

of disaffection with the local union by bargaining unit members. This

escalation would tend to rule out an equal weighting for all activites.

The range of potential decertification activites were assigned the fol-

lowing values to reflect this escalation:

        0 = no decertification activity

        1 = informal meetings and discussions

        2 = formal petition for decertification

        3 = actual decertification election

Decertification attempts must also be examined in relation to specific time frames. A formal attempt during the period up to expiration of the previous contract should have predictable negative effects on union bargaining power. The following research hypothesis was related to this time frame:

> H3(A): A negative relationship exists between the occurrence of a decertification attempt during the period T(1) - T(2) and a percentage change in bargaining outcomes from T(1) - T(3).

A formal decertification attempt made after expiration of the current contract [T(2) - T(3)] should also yield negative results since it is associated with an impasse. The resources which union members must sacrifice during an impasse generally create pressure to reach agreement. Management has a duty to bargain with the union after a petition for decertification has been filed up to the date of the election;[132] however, the union has every incentive in reaching a speedy agreement. If the strike is an economic strike, management may replace union members with new hires. Replacements may also be former striking employees who resigned from the union and were reinstated by the employer. The followng hypohesis was tested to capture this negative relationship:

> H3(B): A negative relationship exists between the occurrence of a decertification attempt during the period T(2) - T(3) and a percentage change in bargaining outcomes from T(1) - T(3).

If the union survives the decertification attempt, emphasis may be more on settling with management than with the magnitude of bargaining

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[132] NLRB v. DRESSER INDUSTRIES 111 LRRM 1436 (1982).

concessions. Under these circumstances, net bargaining outcomes should be even more negative during an impasse than decertification attempts during T(1) - T(2). The following research hypothesis addressed this issue:

> H3(C): The magnitude of the relationship between decertification attempts during T(2) - T(3) and bargaining outcomes from T(1) - T(3) will be significantly more negative than the corresponding relationship for decertification attempts during T(1) - T(2).

Product Market Competition

Collective bargaining does not occur in a vacuum. As such, the employer is constrained in the amount and kinds of concessions that it can make to the union. While general economic conditions, labor market conditions, environmental conditions (i.e., employment laws), and bargaining structure play a prominent role in bargaining outcomes, it is probably the employer's adjustment to conditions in its product market that plays the greatest role. In this study, bargaining outcomes were related to three issues which reflect the employer's adjustment to product market conditions: (1) bargaining unit employment, (2) communication of plant closings, and (3) degree of labor intensity.

Bargaining Unit Employment

The prevalence of layoffs during the recent period of economic adversity and intense product market competition has undoubtedly affected union power. Layoffs are obvious threats to income security and to the union's ability to protect union members. Moreover, layoffs have helped

create a willingness among union leaders to grant concessions in collective negotiations - an overt manifestation of failing union power.

Layoffs may be measured in at least five ways. These are: (1) presence or absence of layoffs; (2) number of layoffs; (3) duration of each layoff; (4) number of persons laid off, each episode; and (5) worker-days lost due to layoffs.

The presence or absence of a layoff or layoffs during $T(1)$ - $T(3)$ provides the least powerful method of explaining variation in bargaining outcomes as it does little to explain variation in layoffs. The number of layoffs offers more explanatory power, but the number of workers and episodic duration provide the greatest potential for explaining bargaining outcomes. In combination, number of workers each layoff episode times the duration of each episode represents worker-days lost. This offers the greatest explanation of variability in layoffs between $T(1)$ - $T(3)$. Although records of layoffs are required for unemployment benefits tax purposes, regrettably, reports do not include estimates of worker-days lost.

Layoff data, per se, may not actually be the best source to capture the effect of employment loss on bargaining outcomes. Layoffs generally include all persons in a plant who are layed off. It may be that a sizeable layoff is actually the result of changes in technology outside the bargaining unit (i.e., new computerized accounting system). While bargaining unit members undoubtedly are concerned about layoffs across the entire plant, layoffs inside the bargaining unit have a strong impact on their behavior. Employment loss in the bargaining unit may act as a direct threat to union power. Employment loss may not represent layoffs

exclusively; however, layoffs should comprise the great majority of personnel actions resulting in employment loss.

While employment loss seems to reflect conditions of the economic environment during the study period, this does not apply to all manufacturers. Some have flourished during this period, resulting in increases in employment. Thus, employment increases are positive changes in the bargaining unit which would be expected to lead to increases in bargaining outcomes.

Increases and decreases in bargaining unit employment represent changes in employment within the bargaining unit. Thus, it is possible to relate changes in bargaining unit employment to changes in bargaining outcomes for the same period [T(1) - T(3)]. Bargaining unit size was used as a proxie for bargaining unit employment. The following formula was developed for this study to capture the percentage change in bargaining unit employment:

$$\frac{\text{BU Size T(y) - BU Size T(x)}}{\text{BU Size T(x)}} \times 100 = \% \text{ change}$$

where: BU = bargaining unit
      T(x) = some initial period
      T(y) = some comparision period

Often either bargaining outcomes or bargaining unit employment or both are related to a third variable, unemployment in the local labor market. Indeed, one may expect bargaining outcomes in the study samples to reflect this general labor market condition. This may exist not only for wages, but for a wide range of bargaining outcomes since concession bargaining has been fairly commonplace in manufacturing.

Unemployment in the local labor market may be intricately tied to a national product market or perhaps a local product market. In the former, consider Detroit or Dearborn, Michigan. Employment in both communities is heavily dependent upon a national market for autos. When demand is low for American cars manufactured in these cities, unemployment rolls are high in the local labor market within each community. This is largely so because the auto makers are the major employers in these communities.

In the second case, demand for autos in the national product market has a secondary effect on employers who are vendors for these auto manufacturers. For the vendors, the product market may be local. For example, in Dearborn or Detroit and in surrounding communities, a number of manufacturers supply various parts for auto assembly plants. When demand is low for American autos, and inventories of manufactured parts are already high, layoffs occur in unionized vendor plants.

A third linkage is basically psychological. Even when the product market is healthy for a particular plant and unemployment in the local labor market is high, local unemployment levels may still have a depressing effect on bargaining outcomes. Under this scenario, bargaining demands may be kept to a reasonable level because there is little sympathy among unemployed persons in the community for such behavior. This lack of sympathy may be felt even by unemployed union members.

The condition under which a dependent variable and an independent variable are related to one another largely because of their joint association with a third varable is known as a "spurious relationship."[133]

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[133] Jacob Cohen and Patricia Cohen, *Applied Multiple*

In order to adequately access the relationship between bargaining out-
comes and changes in bargaining unit employment the effects of the "third
variable" must be removed. The expectation is that when the effects of
area unemployment are removed, the relationship between bargaining out-
comes and bargaining unit employment will disappear altogether. Thus,
for the group of hypotheses dealing with bargaining unit employment, local
unemployment will be controlled.

The accepted measure of unemployment is the percentage of unemployed
persons actively seeking employment in the local labor market. The
practical consideration at hand is the appropriate date for which unem-
ployment observation should be reported. Annual unemployment percentages
are typically used; however, this does not always take into account the
timing of unemployment with collective bargaining.

Several points in time preceding contract ratification should be
considered. First, preparations for contract negotiations typically be-
gin before expiration of the current contract, usually from 90 to 60 days
beforehand. Unemployment data from three to six months preceding prepa-
rations for negotiations may set a tone for initial bargaining objectives;
however, unemployment changes during the negotiations period but before
expiration of the current contract would seem particularly relevant. This
"recency effect" may cause an averaging effect over the roughly six months
preceding the end of the current contract. Even abrupt changes in unem-
ployment during contract negotiations alone would not be spread over a

Regression/Coorelation   Analysis   for   the   Behavioral   Sciences
(Hillsdale, NJ: Lawrence Erlbaum Assoc. , Pubs. , 1975, pp. 83-34.

long enough period for negotiators to rely upon completely in setting wage and non-wage bargaining objectives.

For this study, unemployment was measured as the average percentage of unemployment in the local labor market for a six month period preceding ratificaton of the contract. The 15th of a month represents a significant cutoff point for the beginning of the six month period. If ratification has occurred on the 15th or later in a month, the reporting period for the immediately preceding month is used. If ratification occurred closer to the beginning of a month, the end of the preceding month begins the six month averaging period. Appendix A provides a description of what constitutes a "local labor market" and the sources of such data for this study.

Hypotheses in this section were tested first for the more general relationship between changes in bargaining outcomes and changes in bargaining unit employment. This was necessary to establish the extent, direction and statistical significance of the relationship. Each was immediately followed by a test of the relationship between bargaining outcomes and bargaining unit employment controlling for unemployment in the local labor market:

H4(A)1: A positive relationship exists between a percentage change in bargaining unit employment during T(1) - T(2) and a percentage change in bargaining outcomes from T(1) - T(3).

H4(A)2: The relationship between a percentage change in bargaining unit employment during T(1) - T(2) and a percentage change in bargaining outcomes from T(1) - T(3) is reduced to zero when controlling for the percentage unemployed in the local labor market.

Following a familiar line of reasoning, changes in bargaining unit employment may have a predictable impact on union power during a period of impasse. The following hypotheses were tested to reflect the impasse situation:

H4(B)1: A positive relationship exists between a percentage change in bargaining unit employment from T(2) - T(3) and a percentage change in bargaining outcomes from T(1) - T(3).

H4(B)2: The relationship between a percentage change in bargaining unit employment from T(2) - T(3) and a percentage change in bargaining outcomes from T(1) - T(3) is reduced to zero when controlling for the percentage unemployed in the local labor market.

Employment loss in the bargaining unit during an impasse may have an even stronger effect on bargaining outcomes than for the period preceding the impasse. This may be true because striking employees feel that wage and other concessions made to the union may exacerbate changes in employment. Accordingly, the following hypotheses were tested:

H4(C)1: The magnitude of the relationship between a percentage change in bargaining unit employment from T(2) - T(3) and a percentage change in bargaining outcomes from T(1) - T(3) is significantly greater than for the corresponding relationship for a percentage change in bargaining unit employment from T(1) - T(2).

H4(C)2: The magnitude of the relationship between a percentage change in bargaining unit employment from T(2) - T(3) and a percentage change in bargaining outcomes from T(1) - T(3) when compared with the corresponding relationship in bargaining unit employment from T(1) - T(2) is reduced to zero when controlling for the percentage unemployed in the local labor market for the respective periods.

Plant Closing Communications

The deletorious effects of plant closings are well documented. Particularly noteworthy is the effect of plant closings on contract negotiations and union power. In the immediate study, the "threat" of plant closure was of special interest. Again, studying employers that have closed is meaningless in the context of the research problem. "Threat effects" refers to a fear of employment loss due to plant closing. "Threat" does not mean an act of coercion by management in this context.

Threat effects may occur on several different levels. First plant closures in the general geographic or industrial area may serve as a "chilling effect" on collective bargining outcomes as they reflect the general economic conditions of the community or industry. Second, plant closures within the firm may have implications for the financial stability of the employer in the perceptions of local union members. These are objective measures which presented difficulties in data collection.

In the first case, no criteria exist for determining precisely what boundaries in the general geographic area were relevant for a "chilling effect." Second, since government documents did not provide this information for either state over the complete study period, it required estimates from respondents.

In the second case, plant closures within the firm required information which respondents did not have in sufficient detail. The effect of interfirm plant closures could be quite complex. In the event that production was shifted from the closed plant to the respondent plant, a positive employment effect could have been realized. It is possible, however, that local negotiations would have been relatively unaffected

by this shift, if it did not represent production expansion in the firm, at large. Conversely, closing a plant which was unprofitable or inefficient could present long-run savings for a firm. The difficulty in obtaining information to address this complex variable eliminated it from inclusion.

Although less objective than area-wide and interplant measures of plan closure, the communication to employees of a possible respondent plant closure during the complete study period [T(1) - T(3)], and especially during an impasse [T(2) - T(3)] was a direct measure for which data were available. It was particularly important since the threat of permanent employment loss at the respondent plant could be related directly to plant-level negotiations.

For all periods, the measure was simply a dummy variable in which the occurrence of one or more plant closure communications was assigned a "one." Plants which did not communicate the possibility of a plant closure to union members were assigned a "zero."

Plant closure communications could be either formal or informal in nature. Informal communications could include rumors, informal group discussions or meetings to discuss plant closure. Formal communications could be manifest through "house organs," memoranda, or handbills for both the local union and the employer. For this study, all forms of plant closure communication are equally weighted.

Plant closure communications can occur at any time between T(1) and T(3), although two periods are of special interest. The first may normally occur before expiration of the preceding contract [T(1) - T(2)] and may be geared toward settlement of a contract without an impasse.

Plant closure communications during this period would be expected to have a negative impact on bargaining outcomes. The following research hypothesis addressed this expectation:

H5(A): A negative relationship exists between the occurrence of a plant closure communication during T(1) - T(2) and a percentage change in bargaining outcomes from T(1) - T(3).

The second occurrence of a plant closure communication may come during an impasse between labor and management [T(2) - T(3)]. The possibility of a plant closure during this period of uncertainty would be expected to result in negative net changes in bargaining outcomes as well. Accordingly, the following hypothesis will be tested:

H5(B): A negative relationship exists between a plant closure communication during T(2) - T(3) and a percentage change in bargaining outcomes from T(1) - T(3).

The impact of plant closure threats on changes in bargaining outcomes should be even greater during an impasse than during T(1) - T(2). Strike effectiveness in gaining concessions for unions would be reduced and bargaining would be more likely associated with "give backs" than with union gains. Accordingly, the following hypothesis will be tested:

H5(C): The magnitude of the relationship between plant closure communications from T(2) - T(3) and a percentage change in bargaining outcomes from T(1) - T(3) is significantly greater than for the corresponding relationship for plant closure communications from T(1) - T(2).

Labor Intensity

Labor intensity, which has a long association with bargaining outcomes, is particularly relevant to product market concerns. Labor in-

tensity, or the ratio of labor costs to total costs, normally is associated with lower net bargaining outcomes than is found in firms which substitute relatively more capital for labor.

Undoubtedly because of the difficulty of measurement, labor costs as a percentage of total costs do not capture the relationship that is suggested. In manufacturing, capital is generally substituted for <u>union</u> labor where a union is in place. However, labor costs include all labor, not just union labor. A more accurate measurement of labor intensity is the percentage of total costs <u>accounted for by the bargaining unit.</u>

Measurement of bargaining unit labor costs usually requires extraordinary effort and coordination within a plant between the personnel and accounting departments. The pilot study participants indicated that this information was generally unavailable. Furthermore, pilot study participants resisted generating data for all but the most recent accounting period. Thus, the "standard" definition for labor intensity was employed in this study for the accounting period closest to the end of the current contract. This is represented below as a ratio of labor costs to total costs. Labor costs do not include the cost of employment benefits.

<u>Plant Labor Costs T(2)</u>
Plant Total Costs T(2)

Accordingly, the following research hypothesis was tested:

H6: A negative relationship exists between a ratio of labor costs to total costs at T(2) and a percentage change in bargaining outcomes from T(1) - T(3).

Research Methodology

The methodology employed for the collection of data for this study is outlined in this section. The section is comprised of three major parts. In the first, the research design is discussed. The second details the methods by which the sample was selected and sample data were collected. The third section reviews the technique by which contract items were assigned values and collective bargaining outcome changes were determined.

Research Design

Fred Kerlinger identified two basic purposes for various designs for research: "(1) to provide answers to research questions, and (2) to control variance."[134] Designs are carefully structured such that dependable, valid answers are achieved. The second purpose noted by Kerlinger, the control of variance, is a more difficult task and is not possible in all research designs.

Control of variance is possible in laboratory experimentation in which certain variables may be manipulated in carefully designed situations to access the extent to which one or more predictor variables account for or <u>cause</u> changes in one or more dependent variables. In discussions of research design, laboratory experimentation tends to be the standard by which other designs are compared since laboratory experiments tend to meet the two most desirable attributes of research: (1)

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[134] Fred N. Kerlinger, <u>Foundations of Behavioral Research,</u> 2nd ed. (New York: Holt, Rinehart, and Winston, Inc., 1973), 300.

random assignment of subjects to groups or samples; and (2) the control

of variance.

Kerlinger points out that whether variance can be controlled or not,

the research design should, at the least, be "adequate," or fit the

problem:

> Research designs set up the framework for "adequate" tests of the
> relations among variables. Design tells us in a sense, what obser-
> vations to make, how to make them, and how to analyze the quantita-
> tive representations of the observations.[135]

More often than not, the nature of the problem dictates the type of re-

search design that is possible.

In this study, an ex post facto research design was used. Ex post

facto research is defined as:

> systematic inquiry in which the scientist does not have direct con-
> trol of independent variables because their manifestations have al-
> ready occurred or because they are inherently not manipulable.
> Inferences about relations among variables are made, without direct
> intervention, from concomitant variation of independent and depend-
> ent variables.[136]

In ex post facto research, the two major forms of control are not

possible: (1) experimental manipulation, and (2) random assignment of

subjects to groups or samples. Moreover, "self-selection" of research

subjects is problematic for ex post facto research. In this study, for

example, a rather narrow population of subjects existed, and there was

really no choice about who would be selected. Employer "personnel" of-

ficials "self-selected" themselves into the study. Whereas they may all

have shared at least one set of attributes (personnel officers of a

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[135] Kerlinger, 301.

[136] Kerlinger, 379.

unionized manufacturing plant, bargaining at the plant level with but one

union in a right-to-work state), it was not possible to control for other

attributes which may have accounted for certain survey responses (i.e.,

personality traits).

Given the nature of the research problem, however, the ex post facto

design was "adequate" and appropriate. It was necessary to attempt to

explain how changes in bargaining outcomes occurred because of their re-

lationship with organization-level variables, all of which had already

occurred. Thus, relationships were assessed after the fact. It was not

possible to make concrete statements regarding causality between the

predictor and criterion variables. The measurement of changes in the

criterion variables and in some of the predictors plus the discovery of

statistically significant relationships for the research hypotheses pro-

vide a groundwork for future research. Exploratory research, such as this

project, is particularly valuable toward the development of causal models

which take into consideration the interrelationships of predictor vari-

ables, reciprocal causality, and adequate tests of rival hypotheses.[137]

Data Identification and Collection

Methods of Data Collection

Unstructured and semi-structured, face-to-face interviews, telephone

interviews, mail questionnaires, archival documents (i.e., collective

bargaining agreements), and content analysis formed the nucleus of meth-

ods employed in data collection. Each research method is discussed below

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[137] Herbert Blalock, Causal Inferences in Nonexperimental Research (Chapel Hill, NC: University of North Carolina Press, 1961).

as it was used in the research process. The research process began with
the development of a mail questionnaire.

Questionnaire Development

Based on the review of the relevant literature in Chapter II and in
unstructured interviews with three personnel directors in open-shop
unionized firms, a draft questionnaire was devised to measure many of the
variables believed to predict changes in bargaining outcomes from one
contract period to the next (see Appendix B). In this context, interviews
were used as an exploratory device to elicit information from the prac-
titioner.

The draft questionnaire sought information about just what could be
obtained by personnel directors or their representatives from archival
data (e.g. personnel records, etc.). It was surmised that although sub-
jects may make approximations of some important dates, the availability
of the required information from personnel records should significantly
reduce measurement error due to respondent bias. As a second step in
questionnaire development, a pilot study was conducted to assess the ap-
propriateness of the questionnaire for the subjects and for the research
problem.

The Pilot Study

Personnel directors were sought to review the questionnaire to judge
the feasibility of using it on a larger scale. These subjects were se-
cured in a two-phase process. The first phase involved telephone calls
to solicit pilot study participants. The pilot study was conducted in
Virginia.

The Virginia Industrial Directory was used to identify manufacturing firms in the New River Valley, Roanoke Valley and adjacent areas. Potential pilot study participants were identified by first locating cities from the Directory in the general geographic area (i.e., Blacksburg, Christiansburg, Dublin, Harrisonburg, Narrows, Pulaski, Radford, Roanoke). Companies were selected by identifying the city section within the Directory and picking the first manufacturing plant which the researcher discovered within the city section. Telephone calls were used to gain the initial cooperation of all subjects.

Although telephone calls are initially more expensive than "lead letters," they are superior in helping solicit personal interviews. Moreover, telephoning to arrange an appointment for a personal interview has resulted in significant savings in data collection costs for some researchers when compared with both "lead letters" and "walk-ins" without prior notice. [138]

During the telephone calls, an overview of the research project was provided as well as the general level of commitment required of subjects to complete their role in the pilot study. Appendix C is a copy of the telephone interview guide. Based upon telephone calls to the first 16 employers, 10 initial face-to-face interviews were arranged.

Initial interview. In the second phase of procuring pilot study participants, face-to-face interviews were conducted with the 10 personnel directors who demonstrated an initial interest. During this period,

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[138] Jane Williams Bergsten, Michael F. Weeks and Fred A. Bryan, "Effects of an Advanced Telephone Call in a Personal Interview Survey," Public Opinion Quarterly 48, 3 (Fall, 1984), 650.

the study was more fully explained and questionnaires were distributed

to each personnel director. A discussion of the questionnaire was crucial

at this point because of its rather considerable length.

The initial interview was of the unstructured format. The purpose

of the study was again explained to each interviewee as well as the role

each was expected to play. Since the interview was used to gain the

confidence and support of the interviewees, every effort was made to help

them feel as comfortable as possible with the topic.[139] Accordingly, re-

spondents were encouraged to add comments and to react spontaneously re-

garding the questionnaire or the study, in general.[140]

To help personalize the research topic for the interviewee,

questions were asked of a general nature dealing with the plant's labor-

management relations history, peculiarities of the employer and its em-

ployees or products, major changes that the employer had experienced that

may have impacted labor-management relations in a significant manner.

Because of the sensitivity of some of the information in the interview

and in the questionnaire, and the possibility of provoking unwanted con-

flict with union representatives, anonymity for the interviewee, the em-

ployer, and the local union was assured.[141]

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[139] Thomas J. Bouchard, Jr., "Field Research Methods," in Handbook of
Industrial and Organizational Psychology ed. Marvin D. Dunnette
(Chicago: Rand McNally College Pub. Co., 1976), 383.

[140] Eugene Stone, Research Methods in Organizational Behavior (Glenview,
IL: Scott, Foresman and Co., 1978), 67-68.

[141] Larry K. Williams, John W. Seybolt, and Craig C. Pinder, "On Admin-
istering Questionnaires in Organizational Settings," Personnel Psy-
chology 28, 1 (1975), 95.

Each participant was asked to evaluate the draft questionnaire in an attempt to help the researcher ascertain whether:

1. data were available from personnel records,

2. time requirement prohibited responses,

3. questions were unambiguous and at an appropriate reading level,

4. fatigue was a factor,

5. respondent interest was maintained,·

6. special permission was required for the respondent to participate or to provide certain information, and

7. estimates were used in lieu of archival data.

The cover letter to the draft questionnaire provided recommended guidelines for each respondent to follow in answering each item of the questionnaire (Appendix D). Respondents were provided room on the questionnaire in a wide column entitled, "Personnel Director's Notes," to make comments about each item as it was evaluated.

The personnel directors were informed that, should they agree to participate, a time limit of 10 days from the initial interview would be established to complete the questionnaire. Moreover, they were informed that a follow-up interview would be necessary to discuss their reaction to the questionnaire. Based upon this face-to-face encounter, eight personnel directors elected to participate in the pilot study. Appendix E is a listing of pilot study participants.

Follow-up interview. The follow-up interview was of the "semi-structured" format. This method of inquiry is a compromise between structured and unstructured interview techniques, combining the best features of both. It provides standardized questions for items which must

be asked all interviewees, while allowing open-ended responses for some topics. [142]

For the standardized part of the interview, a review of the respondent's comments was made in his or her presence by the interviewer so that questions or problem areas could be addressed while they were still "fresh" in the mind of the respondent. Questions involved those which addressed the seven areas of major concern. The cover letter for the draft questionnaire was used as a guide to discuss comments made on each questionnaire item. In this way, follow-up interviews could be conducted in a consistent fashion with each respondent. Follow-up interviews lasted approximately 50-60 minutes each.

For the unstructured part of the interview, respondents were encouraged to be candid about the questionnaire and the appropriateness of wording, format, content and the selection of variables. Their sensitivity to certain items or displeasure with aspects of the questionnaire for evaluation of questionnaire revisions.

During the follow-up interview, a pair of collective bargaining contracts was obtained. One represented the current contract that the employer negotiated with the exclusive bargaining agent. The other was the contract immediately preceding the current contract. The contract pairs were used to evaluate changes in bargaining outcomes from one contract to the next.

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[142] Frederick Herzberg, Bernard Mausner, and Barbara B. Snyderman, The Motivation to Work 2d ed. (New York: John Wiley & Sons, Inc., 1967), 16.

Participants provided valuable information on the questionnaire and during the initial and follow-up interviews. Many of their comments and suggestions were incorporated into revisions to the draft questionnaire. For example, securing financial data proved to be a problem. Section VII of the draft questionnaire dealing with the plant's financial viability included a measure of labor intensity. While few of the respondents were willing (or able) to provide financial ratios, they indicated during the follow-up interview that if item 32 on labor intensity had been listed separately, they would have provided an answer. Consequently, the measure of labor intensity was retained. The items requesting financial ratio information were excluded. Similarly, Section V, which dealt with chief negotiator experience, was eliminated because of the difficulty in securing the information about the labor negotiator. Other changes which occurred involved different grouping of questions, rewording, and other less dramatic changes which can be seen by comparing the draft questionnaire with the final questionnaire.

Once the questionnaire was revised, the research subjects and settings were identified and a sampling strategy was devised.

Research Subjects, Settings and Sample Procedures

This study was an attempt to gather objective data relevant to plant-level collective bargaining outcomes from personnel directors in manufacturing plants located in states without compulsory union membership laws. The bargaining outcomes derived from actual contracts at the plant level reflect individual, plant labor-management dynamics where the actual contract is "hammered out."

Personnel directors were chosen as the primary subjects from which data were requested. The personnel director is often the custodian of records relative to the negotiations process, the forging of the contract between labor and management, and contract administration and arbitration.[143] These functions are part of the working relationship between labor and management. In those firms in which resources permit more specialized staff to deal with labor-management relations, these functions generally fall under the control of the personnel director.

In firms which did not have specialized staff to deal with labor-management relations, the researcher requested to speak with the person who negotiated the labor agreement for the employer. This was usually the plant manager or production manager. Only a few of the smaller plants fell into this category. In two cases (one in each state), the labor-management relations function was centralized with one person designated to negotiate for the firm with several of its unionized plants.

Labor representatives do not ordinarily make good candidates for this type of research as most would need to coordinate the gathering of information with the personnel department anyway. Moreover, union leaders often demonstrate considerable apprehension over participation in applied research projects of this nature. This apprehension generally results from the fact that questionnaires have been used frequently by

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[143] In unionized firms, a personnel director may be titled Industrial Relations or Labor Relations director or manager. Some firms prefer a more generic form entitled, "employee relations" manager or director.

management consultants, many of whom are employed for antiunion activity. [144]

Research Settings

Manufacturing firms were selected as research sites because of the relative concentration of union membership in this sector. Even though unionism in the service sector is growing and may appear to be the most advantageous organizing target in the near future, organized labor is well established in manufacturing relative to the service sector. [145] This also allowed for greater variance in the length of bargaining relationships than would be true for the service sector.

Virginia and Iowa were selected as the geographical boundaries for several practical reasons. First, to date, there is no empirical evidence that one "right-to-work" state is any different from another in the conduct of negotiations, contract administration or arbitration. Nor, for that matter, is there empirical evidence to suggest that all "right-to-work" states are alike regarding labor-management relations. There are, however, several logical reasons to suspect that they are not homogeneous in this regard.

Virginia was the second of 20 states to mandate the open shop for unionized firms. Moreover, Virginia is centered in a geographical area in which traditional sentiments about unionism have been negative. One

[144] Michael E. Gordon and Aaron J. Nurick, "Psychological Approaches to the Study of Unions and Union-Management Relations," Psychological Bulletin 90, 2 (September, 1981), 293-306.

[145] Thomas A. Kochan, "How American Workers View Labor Unions," Monthly Labor Review, 102, 4 (April, 1979), 23-32.

may characterize Virginia as "conservative" as regards labor-management relations. Whether a "cause" or an "effect" of this conservatism, union density has been low in Virginia.

Iowa, on the other hand, is located in the heart of the Midwest, a traditional stronghold of unionism in manufacturing. Iowa is perceived by practitioners as very similar in labor-management relations to its neighbors such as Illinois and Minnesota, which are compulsory union membership states. One may characterize Iowa as "adversarial" regarding labor-management relations. Moreover, union density in Iowa and in the Midwest has been quite strong when compared with the better known "open shop" states of the Southeast.

This project represented a first attempt to gather plant-level data on a "right-to-work" issue; consequently, Virginia and Iowa appeared acceptable for an initial study, noting the limitations for generalizability. Both states also presented some cost advantages.

Telephone interviews, and mailing and travel expenses associated with personal interviews for the pilot study would have been cost prohibitive if conducted on a broader scale than Virginia. The researcher was present in Virginia during the pilot study period and was able to take advantage of research facilities at Virginia Polytechnic Institute and State University. Conducting the study under the auspices of Virginia Polytechnic Institute and State University also added a measure of credibility for personnel directors in Virginia.

Iowa also represented a cost advantage as the researcher was employed at Western Illinois University during this period. Western Illinois University is 40 miles from the Mississippi River, Iowa's eastern border.

Telephone calls to secure participant cooperation in the study were somewhat less expensive that they would have been to more distant locales. The familiarity of Iowa personnel directors with Western Illinois University, located in Macomb, Illinois, also provided a measure of credibility for the study for personnel directors in Iowa.

A final consideration was the availability of several professionally-maintained mailing lists for both Virginia and Iowa. These simplified the telephone interviews and mailing of questionnaires to individual personnel directors.

Sample Selection Procedure

Virginia sample. The Virginia Industrial Directory and Union Directory were used to select the employers that would constitute the research population for Virginia. First, the Union Directory of Virginia was reviewed.[146] It listed 800 unionized businesses intact as of January 1, 1984. The list identified, briefly, the name and location of the organization and the unions which represented employees at that location.

It was not possible to tell in each case the type of business in which each firm was engaged. Since the objective was to create a mailing list for unionized manufacturing plants, the Virginia Industrial Directory was consulted. By matching the list of 800 unionized businesses from the Union Directory with those firms listed in the Industrial Directory it was possible to determine which of the 800 which were unionized businesses were also manufacturing plants. Other vital information was se-

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[146] Union Directory of Virginia. 12th edition, Management Relations Department, Virginia Chamber of Commerce, January 11, 1984.

cured such as the mailing address, telephone number, and size category of the employer. Together, the Union Directory and the Industrial Directory allowed for the creation of a mailing and contact list for unionized manufacturing employers in Virginia.

After eliminating mining, construction and service organizations from the 800 Virginia employers, 289 manufacturing facilities remained. Twenty-one employers were struck from the list of 289 because there was more than one bargaining unit at each of the 21 facilities. This left 268 potential respondents for the final sample.

Iowa sample. The Iowa Association of Business and Industry 1985 Membership Directory was used to select the employers that would constitute the research population from Iowa.[147] Following a request to the Association, a letter accompanied the Directory detailing those Association members which were unionized as of January, 1985. Of the 1,144 members, 129 were unionized. From the available data it was not possible to discern the number of bargaining units at each location. Once the list of potential respondents was established for each state, a strategy for data collection was devised.

Sample Size

By convention, one should determine the minimally acceptable sample size during the planning phase of applied research.[148] It is possible to determine the minimally acceptable sample size by using power analysis.

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[147] 1985 Membership Directory (Des Moines, IA: Iowa Association of Business and Industry, 1985).

[148] Jacob Cohen, Statistical Power Analysis for the Behavioral Sciences, revised ed. (New York: Academic Press, 1977), 101.

Through power analysis, sample size may be determined if one knows the direction of the hypotheses (one-tailed vs two-tailed), the level of statistical significance (alpha), the power of the test, and the effect size.[149] However, an important condition for sample size determination is random sampling. The exploratory nature of this study did not allow for random sampling; thus, a precise determination of the sample size could not be made. However, power analysis was used as a guide in the absence of better methods.

With a significance level set at .10 for one-tailed, directional hypotheses, effect size at a medium value (i.e., r = .30), and power set at the conventional .80 level, the minimum sample size allowable to reject the null hypothesis when it is, in fact, false, is n = 49.

The exploratory nature of this study prompted the use of a somewhat less conservative level of statistical significance, alpha = .15. This was a practical consideration along the lines suggested by Skipper, et al.[150] It was felt that the greater probability of commiting a Type I error with the larger alpha level (error rate) was justified for exploratory work.

Setting alpha levels at more conservative levels is most appropriate where prior associations have been demonstrated and the directionality of relationships is known. Under these circumstances, more rigorous

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[149] Ibid.

[150] James K. Skipper, Jr., Anthony L. Guenther, and Gilbert Nass, "The Sacredness of .05: A Note Concerning the Uses of Statistical Levels of Significance in Social Science," The American Sociologist, 2 (February, 1967), 16-18.

standards would be called for so that one may speak with greater confidence about hypothesized relationships.   Less conservative alpha levels are appropriate in exploratory work of this nature so that potential relationships will not be prematurely rejected.   Improvements in research design and measurement in subsequent research may reduce error sufficiently to allow for use of more conservative alpha levels.

One consequence of using a relatively high error rate is the reduction in the sample size necessary to find a statistically significant relationship.[151] Under perfect sampling conditions, the use of alpha = .15 would lead to a minimally acceptable sample size less than 49.   Thus, a sample size in the 40's was used as a target in each state for this research.

Data Collection

Telephone Interviews

The selection of manufacturing firms that: (1) bargained at the plant level, and (2) had but one bargaining unit per employer, placed some restrictions upon sample size.   Moreover, the sensitivity of the topic placed further restrictions on the availability of data.   To address these problems and secure a sample size in the 40's, telehone calls were placed to employers on both mailing lists.

Telephone calls were placed (1) to screen out inappropriate employers, and (2) to provide further information leading to cooperation in the

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[151] Sanford Labovitz, "Criteria for Selecting a Significance Level: A Note on the Sacredness of .05," The American Sociologist, 3 3 (August, 1968), 200-222.

study. In the first situation, screening proved to be particularly im-

portant. For example, some of the unions in both states had negotiated

but one contract with the manufacturing employer; thus they were excluded

from the sample. Likewise, employers were excluded who had more than one

local in their plant, negotiated under a master agreement, had merged

between contracts, had decertified their union, or had new officials

overseeing the labor-management relations function.

The second situation involved two steps. First, personnel directors

were contacted and informed in detail about the study, including the re-

search objectives and anticipated use of the results. Moreover, personnel

directors were told the ways in which they could personally benefit

through participation. In general, the first step was designed to build

interest and commitment to the project. Once commitment to the project

seemed eminent, the second step was initiated. Contract pairs were re-

quested from the personnel directors. Personnel directors were asked to

mail the contract pairs to the researcher simultaneously with the mailing

of the survey instrument to them.

Mail Survey and Follow-Up

The survey was comprised of a three-page questionnaire and a cover

letter. The cover letters shown in Appendix F reiterated the following

items discussed by telephone:

1. the personnel director's responses were important to the study;

2. the study covered significant problems in the respondent's field;

3. the respondent could benefit from participation in the study;

4. results of the study would be made available in summary form by in-
    dustry, product group, etc.; and

5. the information provided by the respondent through both interviews and questionnaires would remain anonymous.

These items have been shown to be strongly related to better survey return rates than when they are omitted.[152]

It was emphasized that only the researcher would know the source of specific data. Moreover, letterhead stationery was used for the cover letter, signifying organizational sponsorship for this study.[153] In Virginia, the letterhead of the Industrial Relations Center, Virginia Polytechnic Institute and State University was used. For Iowa, the letterhead of the Center for Business and Economic Research, Western Illinois University was used. This added a decided measure of credibility to the project.

A return envelope was included in the survey packet. This was a stamped, self-addressed envelope for return of the completed questionnaires.[154] For Virginia, the questionnaires were returned directly to the Industrial Relations Center, Virginia Polytechnic Institute and State University. For Iowa, the questionnaires were returned directly to the Center for Business and Economic Research, Western Illinois University.

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[152] William G. Zikmund, Business Research Methods (Chicago: The Dryden Press, 1984), 155-163.

[153] Zikmund, 142.

[154] Several manuscripts have demonstrated the efficacy of using first class stamps v. business reply postage and metered postage. See A. C. Wolfe and B. R. Treiman, "Postage Types and Response Rates in Mail Surveys," Journal of Advertising Research, 19, 1 (1979), 43-48 and J. S. Armstrong and E. J. Lusk, "The Effect of Return Postage on Mail Survey Response: A Quantitative Review," Unpublished manuscript, Department of Marketing, University of Pennsylvania, 1983.

Finally, personnel directors were requested to photocopy the completed questionnaire for future reference. In this way, personnel directors had a "working copy" of the questionnaire if follow-up telephone calls were made to them. Furthermore, the working copy made interpretation of survey results easier for respondents once they received the results in summary form. A copy of the questionnaire instrument is exhibited at Appendix G.

Telephone calls were made and questionnaires were mailed on the same day for the Virginia sample during early June, 1985, and correspondingly during early July, 1985, for the Iowa sample. For practical reasons, telephone calls were made for a two-week period (10 working days). Budgetary and time constraints prohibited making more telephone calls than could be achieved during this period.

A deadline of three weeks following the mailing of surveys was set for return of questionnaires to the respective centers. Survey participation rate results are reported for the Virginia and Iowa samples separately.

A total of 91 Virginia and 96 Iowa personnel directors verbally agreed to participate in the study. Of the 187 requests for data, 59 from Virginia and 60 from Iowa provided at least some data within the three weeks. Of these, 25 sets of data from Virginia and 29 from Iowa were usable. "Usable" means that respondents completed their questionnaires and provided the appropriate pair of collective bargaining contracts. This constituted an initial return rate of approximately 28 percent for Virginia and 30.2 for Iowa. Respondents who had returned questionnaires

with missing data, had not provided both contracts, or both were treated as non-repondents.

A follow-up telephone call was made to each non-respondent at or after the deadline date. This provided personnel directors an opportunity to query the researcher regarding items that were inhibiting completion. For example, some respondents exhibited a reluctance to provide financially-related data (i.e., degree of labor intensity). Furthermore, ambiguities in wording or meaning were clarified for some personnel directors during follow-up telephone calls. The experience of follow-up telephone calls was very similar for both states.

A second deadline of three weeks was "suggested" to personnel directors. This deadline is consistent with the research of Roberts, et al.,[155] who found a three-week deadline to significantly increase mail survey response rate for the initial and first follow-up mailings. This round of telephone calls resulted in receipt of an additional 17 usable sets of data from Virginia and 10 from Iowa. Thus, follow-up telephone calls increased the sets of usable data by 68 percent for Virginia and by about 35 percent for Iowa. The increases in the Virginia and Iowa response rates are consistent with the research results of two separate studies which found on average that each telephone contact following receipt of the initial mail survey raised the return rate significantly.[156]

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[155] R.E. Roberts, O.F. McCrory, and R.N. Forthofer, "Further Evidence on Using a Deadline to Stimulate Responses to a Mail Survey," Public Opinion Quarterly 42 (1978), 407-410.

[156] J.M. Comer and J.S. Kelly, "Follow-Up Techniques: The Effect of Methods and Source Appeal." Working paper, University of Cincinnati,

Of the 91 original requests for data from Virginia respondents, the 42 usable sets constituted a final return rate of about 46 percent. Of the 96 original requests for data from Iowa respondents, the 39 usable sets comprised a final return rate of approximately 41 percent. These compare favorably with conventional survey return rates which are typically in the 35-40 percent range for samples of personnel and industrial relations specialists.[157]

Comparison of Respondents and Non-respondents

A comparison of non-respondents with respondents was necessary in order to ascertain whether the samples within states were probably drawn from the same population. In order to make the comparison, it was necessary to secure data from non-respondents on a limited set of variables. Three variables were employed for that purpose.

1980 amd Marvin A. Jolson, "How to Double or Triple Mail Survey Response Rates," Journal of Marketing, 41 (1977), 78-81.

[157] Based on a sample of the following published research, the range of survey sample returns was from 19.2% to 49%, with an average of approximately 36%. See...

Kent F. Murrmann and Andrew A. Porter, "Employer Campaign Tactics & NLRB Election Outcomes: Some Preliminary Evidence," Proceedings of the Thirty-Fifth Annual Meeting, Industrial Relations Research Association (Madison, WI: IRRA, 1982), 67-72 [46% of 113]; K.D. Scott and S.E. Markham, "Absence Control Methods: A Survey of Practices and Results," Personnel Administrator, 27 (June, 1982), 73-86 [19.2% of 5,000]; Michael A. Hitt and Robert L. Mathis, "Perspectives of Personnel and Organizational Development," Personnel Administrator 28 (February, 1983), 87-92, 97 [24.6% of 1,000]; Brenda Dobandi and Amy Schattle, "Internships: The Mutually Beneficial Relationship," Personnel Administrator, 29 (May, 1984), 101-115 [42% of 319]; and Darlene Pibal, "Critique of Effective Resumes as Perceived by Personnel Directors," Personnel Administrator, 30 (May, 1985), 119-123 [49% of 250].

First, plant size was used. Plant size is measured as the total number of employees in a plant from the chief executive officer on down. Larger plants generally have personnel staff in sufficient number and greater resources to handle requests for research assistance, whereas, smaller plants may not. In smaller plants, the general manager may conduct collective bargaining or an outside labor specialist may do so. Thus, plant size may play a role in a plant's willingness and ability to particpate.

Second, the age of the bargaining relationship was employed. Age is measured as the number of years from the present day to the day the current local union was certified as exclusive bargaining agent. While it is true that older labor-management relationships may in some cases mean a longer history of unpleasant relations between the local union and the employer, it generally means a more "mature" or stable relationship. It is generally during the formative years of a labor-management relationship that the local union and the employer experience most stress. Consequently, it may be that employers decided not to participate because of the sensitivity of relations with the local and the lack of a mature relationship. Thus, age of the labor-management relationship may play a role in a plant's willingness to participate.

Third, the time period between expiration of the old contract and ratification of the new one was used. This period is measured in days and may be positive or negative. This period potentially reflects a wide range of labor-management behavior. Some local unions are anxious to settle with the employer early and will ratify the new contract before expiration of the old contract. This may reflect stable labor-management

relations or economic reality. In this situation, the time period would be negative because it occurs before expiration or the zero point.

For some, the expiration of the old contract and ratification of the new contract coincide. This would reflect normal union behavior to exercise pressure (i.e., union power) up to the deadline without the costliness of a strike. This time period would be equal to zero.

In some cases, the old contract expires before the new one is ratified. This may constitute a contract extension or a strike. In either event, this period is marked by unusual circumstances whether based on emotion or fact. During initial telephone interviews, personnel directors often used this argument for not wanting to get involved in this project. Thus, this time period may represent a reason why some personnel directors decided to participate while others decided not to participate after making some initial commitment. In this situation, the time period would be positive.

A letter was sent to the 106 personnel directors who elected not to participate in this study _after_ receiving a mail questionnaire. A self-addressed, stamped postcard was attached which included questions to elicit data for these three variables. A copy of the letter and postcard questions is included as Appendix H. These letters were mailed in early December, 1985 to non-respondents in both states. No deadline was imposed because there was obviously no commitment to this project on the part of non-respondents. As an inducement to maximize the postcard return rate, a promise was made to share the research results with those who returned completed postcards. A total of 33 usable postcards were received - 14 from Virginia non-respondents and 19 from Iowa non-respondents.

These non-respondents were then compared with respondents within state to determine whether the three variables constituted a difference for participation in this study. Operationally, it was hypothesized that respondents and non-respondents were not drawn from the same population samples within the respective states, at least on the basis of plant size, age of the labor-management relationship, or time lapse between contracts. It was anticipated that the operational hypothesis would be rejected and that there would be no statistically significant differences on these three variables between participants and non-participants for the Virginia samples or for the Iowa samples.

T-tests were computed to compare respondents and non-respondents for Virginia and for Iowa on the three variables. Results of the t-tests are reported in Tables 6 and 7.

There were no significant differences in mean values for plant size for either the Virginia ($t = .53$, $p < .595$) or Iowa ($t = -1.28$, $p < .206$) data. Similarly, no statistically significant difference exists in age of the labor-management relationship for either the Virginia ($t = -.58$, $p < .567$) or the Iowa ($t = -.67$, $p < .506$) data. It can also be seen that, on average, while ratification tended to follow expiration of the collective bargaining contract, this experience was not different for those who participated versus those who did not. For example, there is no statistically significant difference in mean values for time interval for either the Virginia ($t = .20$ $p < .840$) or the Iowa ($t = .69$, $p < .493$) data.

For all three variables, there were no statistically significant differences between participants and non-participants for either state.

Table 6

VIRGINIA SAMPLE

Test of Differences between Study Participants
and Non-participants on Organization Size

Group	n	Mean	s.d.	Minimum	Maximum
Participants	42	732.048	1257.320	7	6500
Non-participants	14	543.929	639.589	50	2438

t = .53
p < .595

Test of Differences between Study Participants
and Non-participants on Age of Collective
Bargaining Relationship

Group	n	Mean	s.d.	Minimum	Maximum
Participants	42	23.309	11.841	3	45
Non-participants	14	25.429	12.107	10	45

t = -.58
p < .567

Test of Differences between Study Participants
and Non-participants on Interval between
Collective Bargaining Contracts

Group	n	Mean	s.d.	Minimum	Maximum
Participants	42	12.595	40.122	-9	234
Non-participants	14	10.143	36.467	-10	136

t = .20
p < .840

Table 7

IOWA SAMPLE

Test of Differences between Study Participants
and Non-participants on <u>Organization Size</u>

Group	n	Mean	s.d.	Minimum	Maximum
Participants	39	315.615	451.168	12	2304
Non-participants	19	513.526	722.466	12	3018

t = -1.28
p < .206

Test of Differences between Study Participants
and Non-participants on <u>Age of Collective
Bargaining Relationship</u>

Group	n	Mean	s.d.	Minimum	Maximum
Participants	39	29.308	13.413	3	66
Non-participants	19	31.947	15.411	4	51

t = -.67
p < .506

Test of Differences between Study Participants
and Non-participants on <u>Interval between
Collective Bargaining Contracts</u>

Group	n	Mean	s.d.	Minimum	Maximum
Participants	39	13.487	38.800	-18	180
Non-participants	19	7.105	14.794	-4	54

t = .69
p < .493

It appears that participants and non-participants were probably drawn from the same population, at least as regards these three variables. Non-participants undoubtedly chose other reasons for not participating than those suggested here.

The next section details the techniques used to assign values to individual contract items. The method by which percentage changes in total bargaining outcomes are computed is discussed, as well.

Evaluation of Contract Pairs

Use of Content Analysis

Content analysis played a major role in the development of the contract scoring index used in this study and in the evaluation of contract pairs. A general description of this data collection technique and its applicability for this study follow.

Content analysis is a general method for studying and analyzing various written communications in a systematic manner to measure variables. In practice, however, "most content analysis has been used to determine the relative emphasis or frequency of various communications phenomena: propaganda, trends, styles, changes in content, readability. Educational news articles, editorials, and special features might be content analyzed."[158]

Since content analysis often deals with the "written word" it can be especially useful in conjunction with archival data. First, through observation, it can be helpful in defining and categorizing archival data

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[158] Fred N. Kerlinger, Foundations of Behavioral Research, 2d ed. (New York: Holt, Rinehart and Winston, Inc., 1973), 525-533.

into a logical framework for analysis. For example, words, themes, characters, items, and space-and-time measures may be identified as specific units of analysis. Second, once identified, the units of analysis may be assigned specific number values or rankings. Third, numerical values or rankings allow one to systematically and quantitatively analyze the content of written documents.

Although not identified as such, content analysis has been frequently employed in industrial relations research for observation and analysis. For example, content analysis has been used in the rights arbitration area to identify: (1) conditions under which absenteeism-related discharge decisions were upheld by arbitrators,[159] and (2) issues common to religious discrimination arbitration awards.[160] In both studies, the content analysis was conducted on archival data, i.e., Labor Arbitration Reports (Bureau of National Affairs, Inc.) over a specific period of time. Similarly, in the interest arbitration area,[161] a content analysis of 343 municipal arbitration awards was conducted to (1) identify contract issues in police contracts which caused an impasse, (2) analyze the frequency with which these issues occurred, and (3) rank-order their importance to specific arbitration decisions.

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[159] Rhoda Rosenthal, "Arbitral Standards for Absentee Discharges," Labor Law Journal, 30, 12 (December, 1979), 732-740.

[160] I. B. Helburn and John R. Hill, "The Arbitration of Religious Practice Grievances," Arbitration Journal, 39, 2 (June, 1984), 3-13.

[161] John Delaney and Peter Feuille, "Police Interest Arbitration: Awards and Issues," Arbitration Journal, 39, 2 (June, 1984), 14-24.

Of special interest for this study is the research cited earlier in which the contract coding indexes were developed in the public sector[162] and in the private sector.[163] Content analysis was used first to develop the index. In each case, content analysis was performed on collective bargaining agreements in the appropriate environment to determine which contract items were typical of most contracts in that environment. Once the universe of contract items was determined, a range of numerical values was established so that each contract item would receive a relative value. Then the relative values for all items in a contract were summed to produce a total contract score for each contract. Once the contract index had been established, it was possible to evaluate contracts for a number of public sector units (i.e., municipal firefighter contracts) or private sector units (i.e., manufacturing plants).

In each study, collective bargaining outcomes, as computed above, comprised the dependent variable. Statistical analysis was possible by relating the number of explanatory variables in each environment to bargaining outcomes. So, in the context of collective bargaining outcomes,

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[162] Paul F. Gerhart, "Determinants of Bargaining Outcomes in Local Government Labor Negotiations," Industrial and Labor Relations Review, 29, 3 (April, 1976), 331-351; Thomas A. Kochan and Hoyt N. Wheeler, "Municipal Collective Bargaining: A Model and Analysis of Bargaining Outcomes," Industrial and Labor Relations Review, 29, 1 (October, 1975), 49; and John C. Anderson, "Bargaining Outcomes: An IR Systems Approach," Industrial Relations, 18, 2 (Spring, 1979), 127-143.

[163] Thomas A. Kochan and Richard N. Block, "An Interindustry Analysis of Bargaining Outcomes: Preliminary Evidence from Two-Digit Industries," Quarterly Journal of Economics, XCI, 3 (August, 1977), 431-452 and Peter Feuille, Wallace E. Hendricks, and Lawrence M. Kahn, "Wage and Nonwage Outcomes in Collective Bargaining," Journal of Labor Research, II, 1 (Spring, 1981), 39-53.

content analysis has been used to (1) develop the contract scoring index, (2) evaluate each contract in the sample by using the contract scoring index, and (3) analyzing variation in bargaining outcomes. Content analysis was especially useful for this study in evaluation of collective bargaining agreements to establish total bargaining outcome scores for each plant in both samples.

The Contract Evaluation Process

The dependent variable - changes in bargaining outcomes - was determined by comparing the current collective bargaining contract, on an item-by-item basis, with the immediately preceding contract for each organization in the sample. While comparisons of contracts have not been made before, a methodology exists for assigning values to virtually all contract items or provisions. Kochan and Block[164] expanded a method developed in Kochan and Wheeler's public sector study[165] for use in private sector manufacturing and service industries.

Kochan and Block's scaling technique covered 50 standard contract provisions. Feuille, et al. expanded it to include 122 items for their private sector research.[166] Using the same format and scaling technique, the present researcher added six new contract provisions to the index which included pensions, health insurance, dental and optical insurance, industrial injury, base wage, and highest wage. These items are tradi-

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[164] Kochan and Block.

[165] Kochan and Wheeler.

[166] Feuille, Hendricks, and Kahn...The scaling technique manual was provided by Wallace Hendricks (University of Illinois, Institute of Labor and Industrial Relations, August 1, 1975), 285 pages.

tionally found in manufacturing contracts but were not provided for in the Feuille, et al. version.

Description of the Scaling Technique

The revised scaling technique was incorporated into a 285-page manual, covering 128 major contract items, all of which were used in this study. Appendix I is a listing of contract items or provisions which might be found in a wide variety of collective bargaining agreements.

Each contract provision is listed in the manual in the approximate order in which one might expect to find it in a collective bargaining agreement. The order closely approximates that found in the Bureau of Labor Statistics file of collective bargaining agreements which covers 1,000 workers or more.

The contract coding process involved the following steps: (1) identification of differences on contact provisions between contract "a" and contract "b" for each plant; (2) coding of values for each contract item on the coding sheet; (3) coding of questionnaire items on the coding sheet; and (4) transfer of data to computer storage.

In the first step, the identity of differences on contract provisions between contract "a" and contract "b" for all 81 companies was accomplished by two persons working together. One person read contract "a" for a particular company, while the other person read contract "b" for that same company. The pair of contracts was read aloud twice. Readers sat side-by-side at a conference table. One person read contract "a" aloud, from beginning to end of the contract. The other person read contract "b" silently, word-by-word with the first reader. When the second reader would note a change in contract "b," she would ask the first

reader to stop. Both readers would mark their contracts, noting the change in red ink. Once the changes had been marked, reading would resume until another change was noted or the readers had reached the end of the contracts.

On the second reading, the readers switched roles, keeping the same contracts. This provided a "double-check" system. On both readings, every change which existed between contracts "a" and "b" for a company was noted, no matter how insignificant it seemed.

The researcher was the first reader. The second reader was a masters student in Labor and Industrial Relations at the University of Illinois. She had completed two courses in collective bargaining, had practical experience as part of a faculty negotiating team, and was aware of the importance of the study.

Once all contract pairs had been read, the coding process began. The coding of contracts was accomplished by the researcher alone. Contract "a" and contract "b" for a particular company were coded at the same time. The pair of contracts were opened to the same pages in front of the researcher. The contract provisions manual was also open in front of the researcher. The researcher began with the first line of each contract, identified the particular contract item (i.e., management rights provision), located the provision in the manual, and determined the numerical value for the contract item. The numerical value was recorded on the code sheet (Appendix J) for that provision, first for contract "a" and then for contract "b." There are two columns on the code sheet for each contract provision. When no change occurred on a contract provision between contract "a" and contract "b," the same value was as-

signed in both columns. Where a change occurred between contracts, dif-

ferent values are recorded in both columns.

Appendix K serves to further illustrate the assignment of values from

the manual. It represents categories of a contract provision entitled

premium pay for overtime on the sixth day. Note that values range from

zero to ten, with ten representing values of greatest favorability for

union members. In this example, ten represents "quadruple time or more."

Zero represents the lowest value to union members. In this example, it

means "no provision" or "no change from normal conditions."

Categories of intermediate favorability for union members were as-

signed intermediate values. For example, "time and a half" is valued at

2.5, relatively low in comparison with "quadruple time." "Time and a half

in some instances and double time in others," was rated 5.0, a median

score. "Triple time and a half," which is better than time and a half

but not as favorable as quadruple time was rated 7.5.

Using Appendices I, J and K, it is possible to illustrate how coding

was accomplished. Assume that the researcher reached the location in the

pair of contracts which dealt with premium pay for overtime on the sixth

day. A decision needed to be made regarding what values to assign this

premium pay provision in contract "a" and contract "b." The researcher

noted that for contract "b," an improvement had occurred. Negotiations

had resulted in a change in premium pay for overtime on the sixth day in

contract "a" of "time and a half" to "quadruple time" in contract "b".

The numerical value in the manual for "time and a half" was 2.5, whereas

the numerical value for "quadruple time" was 10. The researcher then

looked on the list of contract provisions (Appendix I) to find where to

code these numerical values. The code sheet number which corresponded with premium pay for overtime on the sixth day was 59. Turning to the code sheet, the researcher found 59 on the second page. He then wrote 2.5 in column (a) and 10 in column (b) for number 59. This process was repeated for each provision in all 81 contract pairs.

Throughout the coding process, the manual was searched to see if each item in a contract was present in the manual. All contract items for each contract pair were present in the manual. As might be expected, however, all 128 items in the manual were not present in all of the contracts. For those items listed in the manual which were not included in the actual contract, a value of zero was assigned for each missing item. When items from the contract were present in the manual, the contract item was as-signed a numerical value from the manual.

During the third stage, the questionnaires were coded. The second part of the code sheet was used for this purpose (Appendix I). There were 18 possible responses on the questionnaire; thus, there were 18 spaces for coding on the code sheet. Numerical values were assigned each of the 18 questionnaire items. When a value was missing for a questionnaire item, it was assigned a zero. All other entries were measured as either dichotomous (i.e., 1 or 0) or continuous (i.e., length of a strike meas-ured in days). The 18 items from the questionnaire represented various independent variables used in this study.

Finally, once all contract pair items and questionnaire items were recorded, the coding sheets were used to transfer the data into computer storage for data analysis. The transfer was accomplished by entering the data through a CRT terminal directly to computer magnetic tape via a UNIX

operating system and stored on a CYBER 171 mainframe. The SPSS software

program was then used for statistical manipulations, again interactively

through a CRT terminal.[167]

Estimating Change Scores for Total Bargaining Outcomes

The recording of values for each provision in each contract pair made

it possible to calculate a change score between contract "a" and contract

"b" for total bargaining outcomes. This was accomplished by a FORTRAN

program. For each plant, all 128 items in contract "a" were summed.

Then, for that same plant, all 128 items in contract "b" were summed.

The difference in the total scores between contract "a" and contract "b"

was then computed. Table 8 illustrates the manner in which this was ac-

complished.

Once a change score was computed, it was necessary to convert this

to a percentage change. Percentage change was used so that there could

be a relative value for each plant. This was accomplished by dividing

the change score for total bargaining outcomes by the total bargaining

outcomes score for the previous contract. This is exemplified in Table

9.

Thus, one was able to assess the extent to which union members gained

through collective bargaining by comparing all of the bargaining outcomes

for the current contract with all of the bargaining outcomes from the

previous contract. A percentage change could have been positive, nega-

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[167] Norman H. Nie, C. Hadlai Hull, Jean G. Jenkins, Karin Steinbrenner,
    and Dale H. Bent, Statistical Package for the Social Sciences, 2nd
    ed. (New York: McGraw-Hill Book Company, 1975).

Table 8

Estimation of Changes in Total Bargaining Outcomes

Contract$_a^1$	Contract$_b^2$	Change Scores	
provision$_1$	provision$_1$	provision$_{a_1}$	$-$ provision$_{b_1}$
provision$_2$	provision$_2$	provision$_{a_2}$	$-$ provision$_{b_2}$
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
provision$_n$	provision$_n$	provision$_{a_n}$	$-$ provision$_{b_n}$

$$\sum_{i=1}^{n} \text{provision}_a = \qquad \sum_{i=1}^{n} \text{provision}_b = \qquad \sum_{i=1}^{n} \text{provision}_a - \sum_{i=1}^{n} \text{provision}_b =$$

Sum of all provisions in Contract$_a$	Sum of all provisions in Contract$_b$	Total Bargaining Outcomes Change Score Between Contract$_a$ and Contract$_b$

Source: Developed for this study

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Table 9

Computation of Percentage Change
in Total Bargaining Outcomes

$$\frac{\sum_{i=1}^{n} provision_a - \sum_{i=1}^{n} provision_b}{\sum_{i=1}^{n} provision_a} = \% \ \Delta \ \text{Total Bargaining Outcomes}$$

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[1] previous contract

[2] current contract

[3] n = total number of contract provisions

Source: Developed for this study

tive, or zero, depending upon the degree of bargaining power exercised by the local union in collective negotiations.

Plan for Data Analysis

The data analysis for this study involved four distinctive steps. The first step involved the determination of bivariate relationships between the dependent variable and each explanatory variable. The second involved testing for the spurious effect of unemployment in the local labor market on the relationship between changes in bargaining unit employment and bargaining outcomes. The third step involved testing for significant differences between correlations for four of the hypotheses. The final step involved the use of qualitative analysis to provide insights for certain hypotheses.

Test for Relationship Between the Dependent and Explanatory Variables

Data were arrayed such that the dependent variable was tested against each explanatory variable. For each state, eleven separate tables were created representing H1(A), H1(B), H2(A), H2(B), H3(A), H3(B), H4(A)1, H4(B)1, H5(A), H5(B) and H6. In each, the research hypothesis was tested by correlation analysis for a statistically significant relationship between each set of explanatory variables and total bargaining outcomes.

It should be noted that while all variables were not continuous variables, Pearson Product Moment (PPM) Correlation was used. PPM achieves the same results as other correlational techniques designed specifically to handle bivariate relationships between continuous and

non-continuous data.[168] For example, point-biserial correlation is a short-cut formula used to compute a bivariate relationship between a dichotomous (dummy) variable (i.e., strike occurrence) and a continuous variable (i.e., changes in bargaining outcomes). The coefficient of correlation would be almost identical when using PPM. The advantage to PPM is the ease of computation. The short-cut formula for point-biserial must be computed by hand.

Test for Effect of Unemployment in Local Labor Market on Relationship between Bargaining Outcomes and Bargaining Unit Employment

Hypothesis four addressed the relationship between changes in bargaining unit employment and the outcomes of collective bargaining. It is possible that the relationship between these two variables was accounted for, at least in part, because of their relationship with a third variable - unemployment in the local labor market. Partial correlation analysis was conducted to determine whether a statistically significant relationship remained between the dependent variable and the explanatory variable once the effect of this third variable was removed. First order partial correlations were used to test H4(A)2, H4(B)2 and H4(C)2.

Test for Significant Differences Between Correlations

Hypotheses H2(C), H3(C), H4(C)1, H4(C)2, and H5(C) all required a different statistical technique. Each of these hypotheses compared the magnitude of one correlation with another. For this set of hypotheses,

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[168] Jum C. Nunnally, <u>Psychometric Theory,</u> 2d ed. (New York: McGraw-Hill Book Company, 1978), 132.

Fisher's Z-transformation Function was used to test for statistically significant differences between correlation coefficients.[169] Table 10 is a summary of hypotheses, their expected signs with total bargaining outcomes, and the statistical test used for each hypothesized relationship.

Qualitative Analysis

Milton Derber, W.E. Chalmers, and Milton T. Edelman pioneered in industrial relations research which included both quantitative and qualitative methodologies.[170] They made the first statistical comparisons across establishments on the process of labor-management relations, but their work also provided details of interviews and documentary analysis. In 1955-56, they surveyed 41 establishments and conducted interviews at some of these. They repeated this process again in 1959 for 37 of these establishments. This approach has regained favor recently in the exploratory work of researchers at the Massachusetts Institute of Technology on the impact of Quality of Worklife Programs in 18 General Motors manufacturing facilities.[171] This methodology has also been used to pro-

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[169] Jacob Cohen and Patricia Cohen, Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences (Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers, 1975), 50-51.

[170] Milton Derber, W.E. Chalmers, and Milton T. Edelman, Plant Union-Management Relations: From Practice to Theory (Urbana, IL: Institute of Labor and Industrial Relations, University of Illinois, 1965).

[171] Harry C. Katz, Thomas A. Kochan, and Kenneth R. Gobeille, "Industrial Relations Performance, Economic Performance, and Quality of Worklife Programs: An Interplant Analysis," Industrial and Labor Relations Review, 37, 1 (October, 1983), 3-17.

Table 10

Statistical Test and Expected Sign by Hypothesis Group

Hypothesis Group		Expected Sign	Statistical Test
H(1)	a	+	Pearson's r
	b	+	Pearson's r
H(2)	a	+	Pearson's r
	b	+	Pearson's r
	c	US T(1)-T(2)<US T(2)-T(3)[1]	Fisher's Z
H(3)	a	-	Pearson's r
	b	-	Pearson's r
	c	DA T(1)-T(2)<DA T(2)-T(3)[2]	Fisher's Z
H(4)	a(1)	-	Pearson's r
	a(2)	0	Partial Corr
	b(1)	-	Pearson's r
	b(2)	0	Partial Corr
	c(1)	BUE T(1)-T(2)<BUE T(2)-T(3)[3]	Fisher's Z
	c(2)	BUE T(1)-T(2)≮BUE T(2)-T(3)	Fisher's Z of Partial Corr
H(5)	a	-	Pearson's r
	b	-	Pearson's r
	c	PCT T(1)-T(2)<PCT T(2)-T(3)[4]	Fisher's Z
H(6)		-	Pearson's r

---

[1] US = % change in union strength

[2] DA = decertification attempt

[3] BUE = bargaining unit employment loss

[4] PCT = plant closure threat

vide details about concession bargaining in selected industries.[172] The trend seems to be with providing more details about a relatively small number of organizational units.

This approach was used in this study to take a closer look at data where there are relatively few observations (i.e., strike plants). It was not intended to be part of hypothesis testing. Rather it has been used to describe the data where it was felt that such would provide greater insights about the research results.

Chapter Summary

In Chapter Three, a model was presented to relate bargaining outcomes - the dependent variable - to sources of bargaining power. Sources of bargaining power are depicted as explanatory variables which either enhance or detract from the local union's ability to secure favorable outcomes through collective bargaining. Nineteen hypotheses were tested from among six major groups of explanatory variables.

Chapter Three also detailed the research methodology employed in the identification and collection of data for this study. Unstructured and semi-structured face-to-face, interviews, telephone interviews, questionnaires, archives, and content analysis were methods by which data were collected to test the research hypotheses. Personnel directors in Virginia and Iowa manufacturing plants which negotiated with but one union at the plant level constituted the subjects for this study. The research

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[172] Peter Cappelli, "Plant-Level Concession Bargaining," Industrial and Labor Relations Review, 39, 1 (October, 1985), 90-104.

design was _ex post facto._ Data were collected based on labor-management

interactions which had occurred over a previous six-year period.

This chapter also outlined the technique by which contract items were

assigned numerical values. Once each contract item was assigned a value,

a difference score was constructed for each contract pair to assess

changes in total bargaining outcomes. The difference score was then

converted to a percentage change score.

Finally, the plan for data analysis was outlined. Pearson's Product

Moment Correlation was used to analyze 11 of the 19 hypotheses. Partial

correlation was used to test for the possible spurious effect of unem-

ployment in the local labor market on the relationship between bargaining

unit employment and bargaining outcomes. This involved three hypotheses.

Fisher's Z-transformation Function was used to analyze the remaining five

hypotheses, comparing the magnitude of correlation coefficients between

critical points in time. Qualitative analysis was introduced as a method

whereby a description of the data could be developed to provide more in-

formation about hypothesized relationships. Chapter Four, which follows,

will detail the results of data analysis.

CHAPTER IV

EMPIRICAL RESULTS

Introduction

The major objective of this chapter is to report the results of the statistical analyses described in the preceding chapter. In the first section, descriptive statistics are provided for demographics. In the second section, the validity of the hypothesized linkages in the research model will be determined. Results are reported separately for Virginia and Iowa.

Demographic Information

Data were collected from each respondent to provide information about sample characteristics for each plant and its corresponding union. While the major purpose of this research was to assess the outcomes of bargaining interaction between the employer and its corresponding union, information about each as an organization could prove useful in explaining differences among them. For example, the firms which incurred a strike in a state may have been associated with the same national union or with several national unions with a tradition for militant behavior. A concentration of these unions in either Virginia or Iowa could provide insights regarding the validity of the hypothesized relationships in this study. In essence, demographic data provided information about the context within which negotiations occurred rather than with the process of negotiations.

Three organizational variables for which data were available were selected for this purpose, one for the employer, one for the union, and one for both. The employer was classified according to its type of industry. The local union was classified according to its national union affiliation. A third variable, age of the labor-management relationship, was included as an organizational variable of mutual importance for both labor and management.

Industry type, union affiliation, and age of the labor-management relationship are variables typically included in studies of collective bargaining, often as control variables. The sample size did not allow for a regression model in which these three variables could be systematically controlled. They were included in this study to see whether their distributions would suggest differences in labor-management relations between state samples.

Type of Industry

For the first variable, type of industry, employers were identified by their standard industrial classification (SIC). SIC codes denote the type of industry, by product, to which employers belong. In this study, 2-digit SIC codes were used. The 2-digit level provides the broadest means of classification and was preferable to finer discriminations since the sample size for each state was relatively small. The distributions of the various manufacturing industries found in this study are depicted first for the Virginia sample, then for the Iowa sample.

The distribution of industries for the Virginia sample of 42 plants is shown in Table 11. Sixteen separate manufacturing industies were represented. Two industries accounted for over one quarter (26.2 percent) of all the plants in the sample. Within these two industries, five plants (11.9 percent) produced food and kindred products and six plants (14.3 percent) produced paper and allied products. Fifteen other plants represented 35.5 percent of the sample: three plants each spread among five industries: apparel and other textile products, rubber and miscellaneous plastics products, fabricated metal products, machinery (except electrical), and transportation equipment. The remaining 38.3 percent of sample plants was fairly evenly spread among the following seven industies: (1) tobacco manufacturers, (2) textile mill products, (3) lumber and wood products, (4) furniture and fixtures, (5) chemical and allied products, (6) primary metal industries, and (7) electric and electronic equipment.

The distribution of manufacturing industries for the Iowa sample is shown in Table 12. Ten industries were represented: three accounted for almost half (48.6 percent) of all the plants in the sample. Of these, seven plants (17.9 percent) produced fabricated metal products, seven plants (17.9 percent) produced machinery (except electrical) and five plants (12.8 percent) were in primary metal industries. Twelve other plants represented 30.9 percent of the sample. There were four plants in each of three industries: chemical and allied products, rubber and miscellaneous products, and electric and electronic equipment. Six additional plants accounting for 15.4 percent of the sample, were evenly divided between two industries, food and kindred products and transpor-

Table 11

Distribution of Sample Industries

VIRGINIA

SIC Code	Industry	Frequency	% of Total
20	Food and Kindred Products	5	11.9
21	Tobacco Manufacturers	2	4.8
22	Textile Mill Products	2	4.8
23	Apparel and Other Textile Products	3	7.1
24	Lumber and Wood Products	2	4.8
25	Furniture and Fixtures	1	2.4
26	Paper and Allied Products	6	14.3
28	Chemical and Allied Products	2	4.8
30	Rubber and Misc. Plastics Products	3	7.1
31	Leather and Leather Products	1	2.4
33	Primary Metal Industries	2	4.8
34	Fabricated Metal Products	3	7.1
35	Machinery, Except Electrical	3	7.1
36	Electric and Electronic Equipment	2	4.8
37	Transportation Equipment	3	7.1
39	Misc. Manufacturing Industries	2	4.8
	TOTAL	42	100.1%[a]

[a]Total percentage exceeds 100 due to rounding error.

SOURCE: 1984-85 Virginia Industrial Directory, 16th edition (Richmond, VA: Virginia Chamber of Commerce, 1983) and survey questionnaire items.

Table 12

Distribution of Sample Industries

IOWA

SIC Code	Industry	Frequency	% of Total
20	Food and Kindred Products	3	7.7
27	Printing and Publishing	1	2.6
28	Chemical and Allied Products	4	10.3
30	Rubber and Misc. Plastics Products	4	10.3
32	Stone, Clay and Glass Products	1	2.6
33	Primary Metal Industries	5	12.8
34	Fabricated Metal Products	7	17.9
35	Machinery, Except Electrical	7	17.9
36	Electric and Electronic Equipment	4	10.3
37	Transportation Equipment	3	7.7
	TOTAL	39	100.1%[a]

[a]Total percentage exceeds 100 due to rounding error.

SOURCE: 1985-86 Directory of Iowa Manufacturers, 16th ed. (Des Moines, IA: Iowa Development Commission, 1985) and survey questionnaire items.

tation equipment. The two remaining plants each represented an industry: printing and publishing and stone, clay and glass products. These two plants constituted 5.1 percent of the total sample.

The samples of plants for Virginia and for Iowa demonstrated that while there was considerable overlap for industries between states, there were noteworthy differences as well. First, a greater variety of industries was apparent in the Virginia sample. While the Virginia sample did have three more plants than for Iowa, six more industries were in evidence. Second, the dominant industries in the Virginia sample were paper products and food products. These were present in the Iowa sample, as well, but not as extensively. These two industries represented over one quarter of all plants in the Virginia sample. Lastly, the Iowa sample of 39 plants was spread over fewer industries than for Virginia, and the dominant industries were quite strongly represented. In Iowa, the metals industries (primary metal, fabricated metal and machinery) were the dominant industries constituting almost half the sample.

Affiliation of Local Union

There was a total of 25 national unions included in the two samples. Each national union in the study is listed in Appendix L by its official name, its short name, and its abbreviation. Since national union official names tend to be quite lengthy, the short name for each was used for this study. The short name is also the name by which each is "commonly known."

The distribution of national unions for the Virginia sample of 42 local unions is shown in Table 13. There were 19 different national unions represented; three accounted for 41.5 percent of total local unions

Table 13

Distribution of Unions in the Survey Sample

VIRGINIA

Union Short Name	Frequency	% of Total
Alum., Brick and Glass Workers	2	4.9
Auto Workers	1	2.4
Bakery, Confect. & Tob. Workers	2	4.9
Boiler Makers	2	4.9
Carpenters	1	2.4
Chemical Workers	1	2.4
Clothing and Textile Workers	1	2.4
Electrical Workers	2	4.9
Food and Commercial Workers	2	4.9
Garment Workers	3	7.3
Graphic Communications Workers	2	4.9
Laborers	1	2.4
Oil, Chem. and Atomic Workers	1	2.4
Paper Workers	7	17.1
Rubber Workers	1	2.4
Seafarers	1	2.4
Steelworkers	6	14.6
Teamsters	4	9.8
Woodworkers	1	2.4
TOTAL	41	99.8[a]

[a]Total percentage does not equal 100 due to rounding error.

in Virginia. Of these, seven locals (17.1 percent) were affiliated with the Paper Workers, six locals (14.6 percent) were affiliated with the Steelworkers, and four locals (9.8 percent) were affiliated with the Teamsters. The distribution of national unions among the remaining 16 was relatively even. With the exception of the Garment Workers with which three locals (7.3 percent) were affiliated, none of the remaining national unions had more than two (4.9 percent) local affiliations each.

The distribution of national union affiliation for the Iowa sample of 39 local unions is shown in Table 14. There were 14 different national unions represented: three accounted for over half (53.8 percent) of the 39 local unions. Of these, ten locals (25.6 percent) were affiliated with the Machinists, seven locals (17.9 percent) were affiliated with the Auto Workers, and four locals (10.3 percent) were affiliated with the Molders and Allied Workers. Three other locals each were associated with the Rubber Workers (7.7 percent) and with the Teamsters (7.7 percent), respectively. The remaining 30.8 percent of the local unions were fairly evenly spread over nine other national unions.

Eight national unions are common to both the samples of local unions in Virginia and in Iowa. The dominant unions represent a sizeable proportion of all local affiliated unions in each sample. Moreover, the unions which are dominant in one state are not also dominant in the other. In Virginia, the Paper Workers union is strongest followed by the Steelworkers and the Teamsters. The prevalence of plants in Virginia which manufactured paper and allied products certainly helped explain the strength of the Paper Workers in that state.

Table 14

Distribution of Unions in the Survey Sample

IOWA

Union Short Name	Frequency	% of Total
Auto Workers	7	17.9
Chemical Workers	2	5.1
Electrical Workers	1	2.6
Grain Millers	2	5.1
Graphic Communications Workers	2	5.1
Machinists	10	25.6
Molders and Allied Workers	4	10.3
Oil, Chem. and Atomic Workers	1	2.6
Retail, Wholesale and Department Store Workers	1	2.6
Rubber Workers	3	7.7
Steelworkers	1	2.6
Teamsters	3	7.7
Tool Craftsmen	1	2.6
Transparent Film Workers	1	2.6
TOTAL	39	100.1[a]

[a]Total percentage exceeds 100 due to rounding error.

In Iowa, the Machinists union is strongest with the highest representation for either state. The Auto Workers union was next followed by the Molders and Allied Workers. Again, the types of industries centered in Iowa helped explain this concentration of national unions. Many of the industries were involved in the manufacture of farm implements ranging from small garden tools to the largest combines. The prevalence of plants which manufactured fabricated metal products, non-electrial machinery, and primary metals also provided support for this argument. The manufacture of farm implements was heavily dependent upon these three industries from the foundry activity from which parts were forged to the assembly of the parts into farm machinery. So, while there was some overlap of industries and unions between states, the concentration of dominant unions and industries was quite different.

Age of the Labor-Management Relationship

As was pointed out in Chapter III, the age of the relationship between labor and management is an organizational variable which generally reflects the stability of labor-management relations at each plant over time. The sample mean value for the Virginia sample of 42 plants was about 21 years. Age was fairly evenly distributed with all observations falling within two standard deviations of the mean. The range of age runs from one year up to 43 years. Exactly half of the bargaining relationships are 20 years old or older. Only two of these superceded enactment of the Labor-Management Relations Act of 1947 (Table 15).

The sample mean value for the Iowa sample of 38 plants was about 28 years. Age was not as evenly distributed as for Virginia with approxi-

Table 15

Distribution of Age of Labor-Management Relationship

VIRGINIA

Age	Frequency	% of Total	Age	Frequency	% of Total
1	1	2.4	22	3	7.1
3	2	4.8	24	1	2.4
5	1	2.4	25	2	4.8
6	1	2.4	26	2	4.8
9	2	4.8	29	2	4.8
10	4	9.5	31	1	2.4
12	1	2.4	34	2	4.8
14	1	2.4	36	3	7.1
15	2	4.8	37	1	2.4
18	4	9.5	39	1	2.4
19	2	4.8	40	1	2.4
20	1	2.4	43	1	2.4
	TOTAL			42	100.4[a]

$\bar{x}$ = 20.91 years
s.d. = 11.38 years
range = 1 - 43 years

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[a]Cumulative percentage less than 100 due to rounding error.

mately 34 percent of the observations falling at the upper end of the distribution between 33 and 44 years. As a result almost 70 percent of the bargaining relationships in Iowa were 20 years old or older. The range of age ran from three years up to 63 years. Ten of these relationships superceded enactment of the Labor-Management Relations Act (Table 16).

The information regarding age of labor-management relationships for this study indicates that organized labor has been entrenched in Iowa manufacturing firms relatively longer than in Virginia. The age of labor-management relaionships in Iowa is about seven years greater, on average, than in Virginia, at least for these samples.

When one considered the noteworthy differences in the distributions of industries, national unions, and ages of labor-management relationships between the Virginia and Iowa samples, combining the data for statistical analysis did not appear to be warranted. Consequently, the data for Virginia and Iowa were analyzed separately for hypotheses in the following section.

Test of the Research Model

In this section, the results of statistical analysis for the groups of research hypotheses are reported. First, the group of three variables representing union power is be discussed. Second, those variables categorized as product market competition are discussed. The results are reported in the order in which the hypotheses were positioned within variable categories.

Table 16

Distribution of Age of Labor-Management Relationship

IOWA

Age	Frequency	% of Total	Age	Frequency	% of Total
3	1	2.6	25	1	2.6
5	1	2.6	28	1	2.6
11	1	2.6	30	1	2.6
12	1	2.6	31	1	2.6
14	1	2.6	32	1	2.6
17	3	7.9	33	2	5.3
18	1	2.6	35	1	2.6
19	3	7.9	37	2	5.3
20	2	5.3	39	3	7.9
21	1	2.6	40	2	5.3
22	1	2.6	44	3	7.9
23	1	2.6	47	1	2.6
24	1	2.6	63	1	2.6
TOTAL				38[a]	99.6[b]

$\bar{x}$ = 27.92 years
s.d. = 12.90 years
range = 3 - 63 years

_____

[a]One missing observation

[b]Cumulative percentage does not equal 100 percent due to rounding error.

Union Power

Three categories of hypotheses comprised the union power component: (1) union militancy, (2) union strength, and (3) decertification activity.

Union Militancy

There were two hypotheses made regarding union militancy. The first dealt with strike occurrence:

> H1(A): A positive relationship exists between strike occurrence during T(1) - T(3) and a percentage change in bargaining outcomes from T(1) - T(3).

Results for separate states reveal differences which were not expected. For Virginia, virtually no association existed between strike occurrence and changes in bargaining outcomes. The product moment correlation was 0.109, $p < .247$ (Table 17). The Iowa sample revealed a signficant relationship ($r = -0.280$, $p < .042$); however, it should be noted that for this sample, the relationship was in the <u>opposite</u> direction than was hypothesized (Table 18). Thus <u>the hypothesis was not supported for either sample.</u>

The second hypothesis dealing with union militancy involved the impact of duration of strikes within plants which had been struck:

> H1(B): For employers who experienced a strike, a positive relationship exists between number of strike days and a percentage change in bargaining outcomes between T(1) - T(3).

This hypothesis was grounded in the belief that as the number of days of a strike increases, the local union's power in negotiations increases. For the Virginia sample of six plants which experienced strikes during

Table 17

Test of Hypothesis 1(A)

VIRGINIA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Outcomes	42	.881	3.392	−8.712	8.301
Strike Incidence	42	.143	.354	0	1

$r = 0.1086$
$p < .247$

Table 18

Test of Hypothesis 1(A)

IOWA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Out-comes	39	-.059	2.798	-4.894	11.684
Strike Incidence	39	.154	.366	0	1

r = -0.2803
p < .042

the study period, the hypothesis was not supported. The product moment correlation for this sample was 0.050, p < .463 (Table 19). Results from the Iowa sample supported the hypothesis. For this sample of six plants, when the mean strike duration and bargaining outcomes scores were correlated, the product moment coefficient was 0.828, p < .021 (Table 20). Thus, H1(B) was supported by the Iowa data, but not by data from the Virginia sample.

Union Strength

Within the union power category, there were three hypotheses which dealt with union strength. The first involved the impact of a change in union strength during the first contract on changes in bargaining outcomes:

> H2(A): A positive relationship exists between a percentage change in union strength from T(1) - T(2) and a percentage change in bargaining outcomes from T(1) - T(3).

For Virginia, the results did not support the hypothesis. The product moment correlation for this sample of 36 plants was -0.121, p < .240 (Table 21). Consistent with the Virginia sample, the Iowa data did not support the hypothesis either. There was virtually no relatonship between changes in union strength and changes in bargaining outcomes for this sample of 33 plants (Table 22). Pearson's product moment correlation coefficient was 0.058 (p < .374). Thus hypothesis H2(A) was not supported.

The second hypothesis involved the impact of changes in union strength on changes in bargaining outcomes during an impasse:

Table 19

Test of Hypothesis 1(B)

VIRGINIA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Out-comes	6	1.772	1.456	0	3.706
Strike Duration	6	24.000	25.675	5.000	63.00

r = 0.0496
p < .463

Table 20

Test of Hypothesis 1(B)

IOWA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Outcomes	6	-1.875	2.428	-4.894	.418
Strike Duration	6	34.667	15.795	14.000	55.00

r = 0.8279
p < .021

Table 21

Test of Hypothesis 2(A)

VIRGINIA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Out-comes	36	.732	3.608	-8.712	8.301
% Change in Union Strength	36	1.135	21.093	-35.833	102.696

r = -0.1214
p < .240

Table 22

Test of Hypothesis 2(A)

IOWA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Outcomes	33	.271	2.043	-4.807	11.684
% Change in Union Strength	33	-1.260	15.801	-40.000	34.375

r = 0.0583
p < .374

H2(B):   A positive relationship exists between
         a percentage change in union strength
         from T(2) - T(3) and a percentage change
         in bargaining outcomes from T(1) - T(3).

It was anticipated that changes in union strength would co-vary with

changes in bargaining outcomes during a strike. Results from the Virginia

sample did not support the hypothesis (Table 23). The relationship ex-

hibited between changes in union strength and changes in bargaining out-

comes for this sample of six plants was statistically significant, but

in the opposite direction than hypothesized ($r = -0.820$, $p < .023$). The

Iowa data also did not support the hypothesis, although the relationship

is in the expected direction (Table 24). The product moment correlation

for this sample of six plants was 0.374 ($p < .233$). Thus, the hypothesis

was not supported.

The third hypothesis regarding the impact of union strength on bar-

gaining outcomes involved a comparison between plants which experienced

an impasse with those which did not:

H2(C):   The magnitude of the percentage change in
         union strength from T(2) - T(3) as it relates
         to a percentage change in bargaining outcomes
         from T(1) - T(3) will be significantly greater
         than the corresponding percentage change in
         union strength from T(1) - T(2).

This hypothesis stated that for plants which experienced a strike,

the impact of changes in union strength on changes in bargaining outcomes

would be even greater than for plants which did not experience a strike.

Results from the Virginia sample of 42 plants supported this hypothesis.

Fisher's Z statistic was significant ($Z = 1.709$, $p < .087$). These results

are shown in Table 25. The data from the Iowa sample did not support the

hypothesis. For the sample of 39 plants, Fisher's Z statistic was 0.553,

Table 23

Test of Hypothesis 2(B)

VIRGINIA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Out-comes	6	1.772	1.456	0	3.706
% Change in Union Strength	6	-2.041	17.279	-28.009	25.333

r = -0.8197
p < .023

Table 24

Test of Hypothesis 2(B)

IOWA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Out-comes	6	-1.875	2.428	-4.894	.418
% Change in Union Strength	6	-.198	1.090	-2.249	1.059

r = 0.3736
p < .233

Table 25

Test of Hypothesis 2(C)

VIRGINIA SAMPLE

Variable	r	n	Variance	Z	Significance
Pearson's r for H2(A)	-0.1214	36	.6030	1.709	p < .0872
Pearson's r for H2(B)	-0.8197	6			

p < .582 (Table 26). Thus, <u>only the Virginia data supported the hypoth-</u><u>esis that changes in union strength have an even greater impact on bar-</u><u>gaining outcomes for plants which experienced a strike during the study</u><u>period.</u>

Decertification Attempts

The three hypotheses under union power dealt with decertification attempts. The first involved decertification attempts over the life of the first contract:

> H3(A): A negative relationship exists between
> the occurrence of a decertification
> attempt during the period $T(1) - T(2)$ and
> a percentage change in bargaining outcomes
> from $T(1) - T(3)$.

The essence of this hypothesis is that decertification activity which takes place during the period of the previous collective bargaining contract leads to net negative changes in bargaining outcomes. The hypothesis was not supported for the sample of 36 plants in Virginia (Table 27). The correlation coefficient for this data does not significantly differ from zero ($r = -.138$, $p < .211$). Similarly, the Iowa data did not provide support for this hypothesis (Table 28). For the Iowa sample of 33 plants, the product moment correlaton coefficient was $-.018$ ($p < .461$). Thus, <u>none of the data provided support for H3(A).</u>

The second hypothesis involved the impact of decertification activity on bargaining outcomes during a period of impasse:

> H3(B): A negative relationship exists between
> the occurrence of a decertification at-
> tempt during the period $T(2) - T(3)$ and
> a percentage change in bargaining out-
> comes from $T(1) - T(3)$.

Table 26

Test of Hypothesis 2(C)

IOWA SAMPLE

Variable	r	n	Variance	Z	Significance
Pearson's r for H2(A)	0.0583	33	.6055	.5533	p < .5824
Pearson's r for H2(B)	0.3736	6			

Table 27

Test of Hypothesis 3(A)

VIRGINIA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Outcomes	36	.732	3.608	−8.712	8.301
Decertification Activity	36	.028	.167	0	1.00

r = −0.1382
p < .211

Table 28

Test of Hypothesis 3(A)

IOWA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Outcomes	33	.271	2.043	-4.807	11.684
Decertification Activity	33	.030	.174	.156	1.00

$r = -0.0176$
$p < .461$

No decertification activity was reported for struck plants, thus _it was not possible to test the validity of H3(B)._

> H3(C): The magnitude of the relationship between
> decertification attempts during T(2) - T(3)
> and bargaining outcomes from T(1) - T(3)
> will be significantly more negative than
> the corresponding relationship for decert-
> ification attempts during T(1) - T(2).

A test of the validity of H3(C) requires a comparison of correlation coefficients for plants which experienced strikes during the study period with those which did not experience strikes. Since none of the 12 plants which experienced strikes also experienced decertification activity, _it was not possible to test H3(C)._

Product Market Competition

Three groups of hypotheses were tested in this section for the following explanatory variables: (1) bargaining unit employment, (2) plant closing communications, and (3) degree of labor intensity.

Bargaining Unit Employment

There were six hypotheses made regarding the impact of changes in bargaining unit employment on changes in bargaining outcomes. The first dealt with this relationship over the life of the previous contract:

> H4(A)1: A positive relationship exists between
> a percentage change in bargaining unit
> employment during T(1) - T(2) and a
> percentage change in bargaining
> outcomes from T(1) - T(3).

The assumption underlying this hypothesis was that loss of employment in the bargaining unit over the life of the previous contract acted as a "threat" to union negotiating power. Therefore, the employment

threat would lead to negative bargaining outcomes. The opposite would be expected for increases in employment. The correlation coefficient of .101 (p < .295) for the Virginia sample of 36 plants did not provide support for H4(A)1 (Table 29). Data from the Iowa sample of 33 plants did support this hypothesis. The r was found to equal .229, p < .111 (Table 30). Thus, <u>hypothesis 4(A)1 was supported by data from the Iowa sample, but not by the Virginia data.</u>

The second part of H4(A) addressed the effect of the unemployment rate in the local labor market on the relationship between bargaining unit employment and bargaining outcomes:

> H4(A)2: The relationship between a percentage change in bargaining unit employment during T(1) - T(2) and a percentage change in bargaining outcomes from T(1) - T(3) is reduced to zero when controlling for the percentage unemployed in the local labor market.

The underlying assumption for this hypothesis was that once the effect of unemployment in the local labor market was removed from the relationship between changes in bargaining unit employment and changes in bargaining outcomes, the relationship would be eliminated. In essence, unemployment in the bargaining unit and unemployment in the local labor market were hypothesized to be competing for the true influence on changes in bargaining outcomes. If a spurious relationship existed, unemployment in the local labor market would literally "wipe out" the effect that bargaining unit unemployment had on changes in bargaining outcomes. In this case the true impact of unemployment on bargaining outcomes would be a labor market effect.

Table 29

Test of Hypothesis 4(A)1

VIRGINIA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Out-comes	36	.732	3.608	-8.712	8.30
% Change in Bargaining Unit Employment	33	.871	35.689	-50.000	132.593

r = 0.1007
p < .295

Table 30

Test of Hypothesis 4(A)1

IOWA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Out-comes	33	.271	2.043	-4.807	11.684
% Change in Bargaining Unit Employment	33	-17.239	36.241	-82.074	107.692

r = 0.2294
p < .111

As noted above, for the Virginia sample of 36 plants, H4(A)1 was not supported. The zero order correlation coefficient of .101, although not statistically significant (p < .295) was reduced by almost six percent when partial correlation analysis was used to control for area unemployment (Table 31). The first order partial correlation coefficient was .095 (p < .310). This did not, however, support hypothesis 4(A)2.

For H4(A)1, which was supported by the Iowa sample of 33 plants, the zero order correlation coefficient was partial correlation analysis, the zero order coefficient was <u>increased</u> to .257 (p < .089), an improvement of about 12 percent (Table 31). These results did not support the hypothesis. Thus, <u>hypothesis H4(A)2 was not supported for either Virginia or Iowa.</u>

Bargaining unit employment may have a predictable impact on union power during a period of impasse, as well. The following hypothesis was tested to reflect the impasse situation:

H4(B)1: A positive relationship exists between a percentage change in bargaining unit employment from T(2) - T(3) and a percentage change in bargaining outcomes from T(1) - T(3).

The hypothesis was not upheld by the Virginia sample of six plants. A strong, <u>negative</u> relationship was demonstrated which significantly departs from zero (r = -.651, p < .081) (Table 32). For the Iowa sample of six plants the hypothesized relationship was also not upheld. Correlation analysis produced r = .210 at p < .345 (Table 33). Thus, <u>for both Virginia and Iowa, the hypothesis was not supported.</u>

Table 31

Test of Hypothesis 4(A)2

Sample Change	r^a	df	p	Adjusted r^b	df	p	%
Virginia	.1007	34	.295	.0945	28	.310	-.062
Iowa	.2294	31	.111	.2572	27	.089	.121

[a]Zero-order correlation coefficients

[b]First-order partial correlation coefficients

Table 32

Test of Hypothesis 4(B)1

VIRGINIA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Out-comes	6	1.772	1.456	0	3.706
% Change in Bargaining Unit Employment	6	-.213	.195	-1.280	0

r = -0.6507
p < .081

Table 33

Test of Hypothesis 4(B)1

IOWA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Outcomes	6	-1.875	2.428	-4.894	.418
% Change in Bargaining Unit Employment	6	-10.871	24.159	-60	0

r = 0.2097
p < .345

The following hypothesis addressed the impact of unemployment in the local labor market on changes in bargaining unit employment during an impasse as they related to bargaining outcomes.

> H4(B)2: The relationship between a percentage change in bargaining unit employment from T(2) - T(3) and a percentage change in bargaining outcomes from T(1) - T(3) is reduced to zero when controlling for the percentage unemployed in the local labor market.

The assumption in H4(A)2 was that once the effects of unemployment in the local labor market were removed from the relationship between employment in the bargaining unit and bargaining outcomes, this relationship would disappear completely. This hypothesis presents the same argument for plants which experienced strikes.

Results from the Virginia data did not support the hypothesis. The zero-order correlation coefficient for the six plants was -.651, p < .081. This coefficient was increased to -.678 (p < .104) when the effects of unemployment in the local labor market were removed by partial correlation (Table 34). This had the effect of increasing the negative correlation coefficient by about four percent.

The Iowa data did not uphold the hypothesis. For this sample of six plants, the zero-order correlation coefficient of .210 (p < .341) in-creased by approximately 16 percent following partial correlation analysis (Table 34). The first-order partial correlation coefficient was .244, p < .346. Thus, for hypothesis 4(A)2, neither the results from Virginia nor from Iowa were consistent with the hypothesized effect.

Table 34

Test of Hypothesis 4(B)2

Sample	r^a	df	p	Adjusted r^b	df	p	% Change
Virginia	-.6507	4	.081	-.6775	3	.104	.041
Iowa	.2097	4	.341	.2436	3	.346	.162

[a]Zero-order correlation coefficients

[b]First-order partial correlation coefficients

The following hypothesis involved a comparison of plants in the strike and no-strike situation regarding the impact of employment changes in the bargaining unit on bargaining outcomes:

H4(C)1:   The magnitude of the relationship between a percentage change in bargaining unit employment from T(2) - T(3) and a percentage change in bargaining outcomes from T(1) - T(3) is significantly greater than for the corresponding relationship for a percentage change in bargaining unit employment from T(1) - T(2).

The assumption underlying this hypothesis was that the effects of changes in employment during an impasse would be greater on bargaining outcomes than for changes in employment occurring during the life of the initial contract.   This hypothesized effect was found for the Virginia sample of 42 plants (Table 35).   Fisher's Z statistic used to test for statistically significant differences between correlation coefficients for T(1) - T(2) and T(2) - T(3) was -1.478, p < .140.   Conversely, the Iowa data do not support H4(C)1.   The Fisher's Z statistic was -.024, p < .984 (Table 36).   Thus, only the data from Virginia lend support for the hypothesis that an impasse situation magnifies the effect that employent changes in the bargaining unit have on bargaining outcomes compared with the no impasse situation.

The following hypothesis addressed the impact of unemployment in the local labor market on the relationship depicted in H4(C)1:

H4(C)2:   The magnitude of the relationship between a percentage change in bargaining unit employment from T(2) - T(3) and a percentage change in bargaining outcomes from T(1) - T(3) when compared with the corresponding relationship with bargaining unit employment from T(1) - T(2) is reduced to zero when controlling for the percentage unemployed in the local labor market.

Table 35

Test of Hypothesis 4(C)1

VIRGINIA SAMPLE

Variable	r	n	Variance	Z	Significance
Pearson's r for H4(A)1	.1007	36	.6030	−1.4787	p < .1388
Pearson's r for H4(B)1	−.6507	6			

Table 36

Test of Hypothesis 4(C)1

IOWA SAMPLE

Variable	r	n	Variance	Z	Significance
Pearson's r for H4(A)1	.2294	33	.6055	−.0243	p < .9840
Pearson's r for H4(B)1	.2097	6			

It was hypothesized in both H4(A)2 and H4(B)2 that unemployment in the local labor market had the effect of eliminating the relationship between changes in bargaining unit employment and changes in bargaining outcomes. Hypothesis 4(C)2 introduced a control for unemployment in the local labor market when comparing the magnitude of the strike versus no-strike situation depicted in H4(B)2.

Results could not be tabulated for either the Virginia or the Iowa samples. To compute Fisher's Z statistic on partial correlation coefficients, at least four degrees of freedom were required. The combination of these statistical techniques reduced the degrees of freedom for both samples of six plants to three degrees of freedom, less than the minimum necessary for computation. Thus, it was not possible to determine whether a statistically significant relationship existed in H4(C)2 for either sample.

Plant Closing Communications

There were three hypotheses which dealt with the impact of a plant closure communication on collective bargaining outcomes. The first involved communication during the life of the initial contract:

> H5(A): A negative relationship exists between the occurrence of a plant closure communication during T(1) - T(2) and a percentage change in bargaining outcomes from T(1) - T(3).

The assumption underlying this hypothesis was that plant closure communications to employees during the course of the initial contract depressed union bargaining power. Results from the Virginia sample of 36 plants did not support the hypothesis. Correlation analysis produced $r = -0.162$ at $p < .172$. This was in the anticipated direction, but in-

sufficient to substantiate the hypothesis (Table 37). A weak association existed between the degree of plant closure communications and bargaining outcomes for the Iowa data (Table 38). The relationship for this sample of 33 plants was not significantly different from zero (r = -.102, p < .286). Thus, the data failed to uphold the hypothesized relationship between plant closure communications and bargaining outcomes in H5(A).

The second hypothesis addressed the impact of plant closure communications during the impasse period:

> H5(B): A negative relationship exists between a plant closure communication during T(2) - T(3) and a percentage change in bargaining outcomes from T(1) - T(3).

This hypothesis extended the logic of H5(A) to include the impasse situation. The threat of a plant closure during a strike should have resulted in weakened union power and subsequently should have yielded lower bargaining outcomes. For the Virginia sample of six plants, the hypothesis was supported. The relationship between plant closure communications and bargaining outcomes reached significance at r = -.515, p < .148 (Table 39). The product moment correlation coefficient for the Iowa sample could not be computed because apparently no plant closure communications were made in the six Iowa plants during an impasse. Thus, only the Virginia data substantiated H5(B).

The following hypothesis addressed the impact of plant closure communications during strikes vis-a-vis plant closure communications occurring during the course of the initial contract:

Table 37

Test of Hypothesis 5(A)

VIRGINIA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Out- comes	36	.732	3.608	-8.712	8.301
A Plant Closure Communication	36	.083	.280	0	1

$r = -0.1621$
$p < .172$

Table 38

Test of Hypothesis 5(A)

IOWA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Out- comes	33	.271	2.043	-4.807	11.684
A Plant Closure Communication	33	.091	.292	0	1

r = -0.1018
p < .286

Table 39

Test of Hypothesis 5 (B)

VIRGINIA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Outcomes	6	1.772	1.456	0	3.706
A Plant Closure Communication	6	.167	.408	0	1

r = -0.5150
p < .148

H5(C): The magnitude of the relationship between
plant closure communications from T(2) - T(3)
and a percentage change in bargaining outcomes
from T(1) - T(3) is significantly greater than
for the corresponding relationship for plant
closure communications from T(1) - T(2).

Plant closure communications were hypothesized to have their great-
est impact during periods of impasse between the local union and the em-
ployer. Regarding the Virginia sample of 42 plants H5(C) was not upheld
($Z = -.667$, $p < .503$) (Table 40). Since no plant closure communications
were made during strikes occurring in the six Iowa plants, hypothesis 5(C)
could not be tested for Iowa. For the Virginia sample, however, the hy-
pothesized relationship between plant closure communications and bar-
gaining outcomes was not supported.

Labor Intensity

There was but one hypothesis regarding labor intensity:

H6: A negative relationship exists between
a ratio of labor costs to total costs at
T(2) and a percentage change in bargain-
ing outcomes from T(1) - T(3).

The logic behind this hypothesis was simply that the greater the
proportion that labor costs impose on total employer costs, the fewer
resources the employer has to share with union members through collective
bargaining. This assumption was tested first with the Virginia sample.
Little association was found between the degree of labor intensity and
bargaining outcomes ($r = .114$ at $p < .242$) (Table 41). Consistent with
the foregoing results, the Iowa sample of 36 plants did not uphold H6.
The correlation coefficient between degree of labor intensity and bar-
gaining outcomes was -0.128, $p < .228$ (Table 42). Thus, the data failed

Table 40

Test of Hypothesis 5(C)

VIRGINIA SAMPLE

Variable	r	n	Variance	Z	Significance
Pearson's r for H5(A)	-.1621	36	.6030	-.6667	p < .5028
Pearson's r for H5(B)	-.5150	6			

Table 41

Test of Hypothesis 6

VIRGINIA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Outcomes	40	.697	3.263	-8.712	7.744
Degree of Labor Intensity	40	24.041	12.824	3.680	55.500

r = 0.1141
p < .242

Table 42

Test of Hypothesis 6

IOWA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Outcomes	36	-.117	2.904	-4.894	11.684
Degree of Labor Intensity	36	24.936	14.018	2	57.400

$r = -0.1281$
$p < .228$

to support the hypothesis that the degree of labor intensity is negatively
and significantly related to changes in bargaining outcomes in this study.

Chapter Summary

Eighteen research hypotheses were tested to ascertain the determi-
nants of changes in collective bargaining outcomes from the initial con-
tract to the current contract.   Each hypothesis was tested for data
secured through a mail survey of Virginia and Iowa manufacturing plants.

Five of the 18 hypotheses received partial support as evidenced in
Table 43.   No hypothesis received full support for all data sources,
whereas nine hypotheses were completely rejected.   H3(B) and (C) could
not be tested because observations of the independent variable were not
reported by struck plants.   Similarly, H4(C)2 could not be tested.   In
this case the sample size was too small to allow for computation of the
test statistic.   H5(B) and (C) could not be tested for Iowa as plant
closure communications were not reported for this sample during an im-
passe.

Chapter V provides a detailed analysis of the research results.   The
implications of the results for future research are discussed as well.
Recommendations are provided that may help improve survey response rate,
coding of collective bargaining contracts and variable specification.

Table 43

Summary of Empirical Results

Hypothesis	Supported	Not Supported	Not Computed
H1(A)		V, I	
H1(B)	I	V	
H2(A)		V, I	
H2(B)		V, I	
H2(C)	V	I	
H3(A)		V, I	
H3(B)			V, I
H3(C)			V, I
H4(A)1	I	V	
H4(A)2		V, I	
H4(B)1		V, I	
H4(B)2		V, I	
H4(C)1	V	I	
H4(C)2			V, I
H5(A)		V, I	
H5(B)	V		I
H5(C)		V	I
H6		V, I	

V = Virginia sample
I = Iowa sample

CHAPTER V

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

Introduction

The first section in this chapter is a brief summary of the study. The second section is devoted to a discussion of the results for the relationship between each explanatory variable in the research model and the dependent variable, changes in bargaining outcomes. In the third section, conclusions are drawn in consideration of research findings and the limitations of this study. The fourth section provides recommendations for future research based upon the current research endeavor.

A Brief Review of the Study

This study was an examination of the determinants of plant-level bargaining outcomes in two right-to-work states, Virginia and Iowa. The study was unique in several ways.

First, the observations were drawn from plants in both states which negotiated with but one union at the plant level. Virtually all studies examining the various outcomes of collective bargaining have been conducted at the industry or occupation level. From these studies, generalizations have been made about labor-management relationships at all levels of activity, from single plant-single union collective bargaining up to nationwide, conference bargaining. This practice of generalizing

about micro concepts from macro data, known as the "ecological fallacy," is improper and unreliable. [173]

The logical starting point is the lowest level at which collective bargaining takes place - the plant level. Once generalizations are possible at the single-plant, single-union level, the same measures can be taken at successively higher levels of collective bargaining activity. For example, observations of the same variables can then be made in multi-plant firms which negotiate with the same union, and so on. In this way it is possible to tell whether the same concepts are applicable to all levels of collective bargaining. This study corrects for the fallacy creating an important point of departure for future multi-level studies.

Second, changes in bargaining outcomes constituted the dependent variable. Total bargaining outcomes include all items found in a collective bargaining contract, which constitute the results of negotiations experience between representatives from the local union and the employer. While several studies in both the public sector and private sector have used the _level_ of bargaining outcomes, this study was the first to use _changes_ in bargaining outcomes. This was a logical choice to determine the success of efforts by union and employer negotiators between contracts.

Third, the independent varibles used in this study were a reflection of both traditional and contemporaneous phenomena. The traditional var-

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[173] William S. Robinson, "Ecological Correlations and the Behavior of Individuals," _American Sociological Review_ 15 (1950), 351-357 and G. A. Firebaugh, "A Rule for Inferring Individual-Level Relationships from Aggregate Data, _American Sociological Review_ 43 (1978), 552-557.

iables provided a basis for comparison with past research. Strikes and the degree of labor intensity are two sources of bargaining power selected for this study which have demonstrated consistent relationships with bargaining outcomes in past research, particularly wages. Contemporary variables which reflected behavior leading to possible concession bargaining, a phenomena symptomatic of the economic climate of the past decade, were employed in this study as well. For example, layoffs and plant closings have been on the upswing during the study period. The threat posed by layoffs and plant closings to job security and to union contract demands during negotiations had not been empirically established. This study marked the first occasion upon which the relationship between bargaining outcomes and several such contemporary variables were studied in a systematic way.

Finally, where possible, changes in independent variables measured at the plant level were recorded. These changes were used to capture the behavior of negotiators in their efforts to affect bargaining outcomes.

The sample for this study consisted of personnel directors from unionized manufacturing plants in Virginia and Iowa who volunteered during personal telephone calls to their place of work. The dependent variable, changes in bargaining outcomes, was derived from a pair of contracts from each plant. These historical documents represented the current contract and the contract just previous to the current contract. From these, numerical values were assigned to each provision in each contract on an item-by-item basis. A total score was then created for each contract by summing all values in each contract. A difference score was derived between total scores for each pair of contracts from which

was constructed a percentage change score for each plant. This percentage change represented the extent to which union negotiators had been successful in achieving a broad range of outcomes through negotiations which were favorable to union members.

A mail survey questionnaire was sent to each respondent and returned with data derived mostly from personnel records. Several questions did rely upon the memory of respondents. The questionnaire provided data for the independent variables and several demographic variables, as well.

The major objective of this study was to assess the extent to which local union members have been served through collective negotiations. The study used two categories of explanatory variables. Those which the union could directly manipulate were referred to as "union power." Those over which management had greater control were referred to as "product market competition."

In the following section, each major category is discussed on a variable-by-variable basis. In this discussion, each hypothesis is articulated in layman's terminology and an assessment is made of the validity of the hypothesized relationships between each independent variable and the dependent variable, changes in bargaining outomes.

Results from the Research Model

The research model began with union power, a ubiquitous concept in research on bargaining outcomes. In this study, union power was represented by union militancy, union strength, and decertification attempts. Union power will be discussed in this order. Results will be presented first for the Virginia sample and then for the Iowa sample.

Union Militancy

Union militancy was represented in this study by strikes. Strikes have been the most commonly researched form of union militancy and were especially relevant for this study since they have been significant predictors in studies of both financial and non-financial bargaining outcomes.[174]

Two measures of strikes were employed. The first was strike incidence. Strike incidence was simply a dummy variable indicating whether a plant experienced a strike during the study period.

Since strikes have been suggested as the strongest source of union power, it was assumed that plants which experienced strikes over the study period would experience more favorable outcomes through collective negotiations. Thus it was expected that when compared with plants which had not experienced strikes, struck plants would demonstrate greater net positive change in bargaining outcomes.

This expectation was not supported by the data [H1(A)]. For Virginia there was virtually no relationship between strike incidence and bargaining outcomes. Table 44 is a summary of information for strike plants in Virginia. No trends were apparent from the data in Table 44 which

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[174] Thomas A. Kochan, Collective Bargaining and Industrial Relations, (Homewood, IL: Richard D. Irwin, Inc., 1980), 139; and Thomas A. Kochan and Richard N. Block, "An Interindustry Analysis of Bargaining Outcomes: Preliminary Evidence from Two-Digit Industries," Quarterly Journal of Economics, XCI, 3 (August, 1977), 431-452.

Table 44

Strike Incidents

VIRGINIA

% Change in Bargaining Outcomes	Industry	National Union	Age of L&M Relationship (years)	Strike Duration (days)
0	Food & Kindred Products	Teamsters	15	5
+3.706	Food & Kindred Products	Laborers	22	5
+ .242	Fabricated Metal Products	Alum., Brick & Glass Workers	9	13
+2.857	Transportation Equipment	Alum., Brick & Glass Workers	10	8
+1.632	Rubber/Misc. Plastics Products	Graphic Communications Workers	25	50
+2.195	Primary Metals	Steelworkers	36	63

$\bar{X} = +1.772$ $\bar{X} = 19.5$ years $\bar{X} = 24$ days

provided insight regarding the impact of strikes on changes in bargaining outcomes.

Strikes apparently were ineffective as a source of bargaining power in Virginia. This seemed surprising considering the impact which was demonstrated in earlier studies across a broad range of collective bargaining outcomes.

One implication for union leadership is to assess the record of performance which the local has experienced with the employer in previous strike episodes. If striking under similar circumstances in the past has yielded little or no results, perhaps other sources of union power should be employed to affect bargaining outcomes.

An even more surprising result was that while the relationship between strike incidence and bargaining outcomes reached statistical significance for the Iowa data, it was in the opposite direction than hypothesized (Table 45). That is, there was a tendency for a strike to be associated with reductions in bargaining outcomes. For this sample, most of the plants were associated with the farm implement industry in Iowa which has been particularly hard hit. Bargaining concessions have been commonplace, an experience in evidence here.

Thus, at least for Iowa, it may be assumed that the message of strikers in the failing farm implement industry fell on "deaf ears." It may be that the financial condition of these six plants which struck was reportedly poor and union members elected to strike out of frustration. Although counterintuitive and threatening to employment, strikes may have been resorted to when union members simply did not know how else to react.

Table 45

Strike Incidents

IOWA

% Change in Bargaining Outcomes	Industry	National Union	Age of Labor-Management Relationship (years)	Strike Duration (days)
−4.104	Fabricated Metals Products	Auto Workers	14	36
+.223	Fabricated Metals Products	Molders and Allied Workers	5	41
+.192	Electric and Electronic Equipment	Auto Workers	11	44
−4.889	Electric and Electronic Equipment	Machinists	3	14
−3.082	Primary Metals Products	Steelworkers	24	18
+.418	Transportation Equipment	Auto Workers	20	36
$\bar{X} = -1.875\%$			$\bar{X} = 12.83$ years	$\bar{X} = 31.5$ days

The implications are relatively straightforward. Union leaders should request financial information from the employer when a claim of economic austerity is made. Union members have a legal right to this information. Employers may be able to diffuse strike sentiments by willingly providing financial information to local unions.

The second measure of strikes was that of strike duration. Kochan demonstrated that whereas strikes of two weeks duration had little effect in moving management negotiators away from their wage targets, strikes of longer duration resulted in wage offers approximately .62 percent per year above their initial wage targets.[175]

Ordinarily, employers can build up inventories in the short run by working overtime prior to the normal contract expiration date; however, it is reasonable to assume that these inventories would be depleted at some time following a work stoppage. The longer the period of the impasse, ceteris paribus, the greater the expectation for a positive percentage change in bargaining outcomes, i.e., more favorable contact for the local union.

The Virginia data did not support this assumption. Indeed, the largest positive changes in bargaining outcomes resulted from strikes of relatively short duration, whereas the longer strikes resulted in less dramatic changes (Table 44).

The Iowa sample supported the hypothesis that longer strikes lead to more favorable outcomes for the local union. The correlation coefficient for the six Iowa plants was particularly strong: $r = .828$, and

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[175] Kochan, p. 322.

significantly departed from zero (p < .021).   For this sample, however, "favorable" takes on a different connotation.

Information in Table 45 helps in interpreting this coefficient.   It can be seen that, in general, when comparing the columns for percentage change in bargaining outcomes and strike duration in Virginia, strikes of longer duration tend to be associated with lower level concessions or slight gains.   For the Iowa sample, each strike met or exceeded the two week period alluded to by Kochan.

This may be as implied, that for the Iowa local unions willing to risk a lengthier strike, the payoff for the exercise of union power was greater than for locals which acquiesced sooner.   An implication of these results may be that when union leaders develop strike strategies, they should take into consideration that pressure tends to swing against man- agement following a significant reduction in inventories.   The Kochan estimate of two weeks may be a reflection of inventory reduction.   It held up fairly well for the Iowa plants as all six strikes met or exceeded two weeks.   One could also not rule out the possibility that without striking, those locals which experienced negative outcomes/ would have experienced even more negative outcomes.   There appears to be no systematic relationship between strike duration and changes in bargaining outcomes for the Virginia data.

Union Strength

Of all the union power variables used over the past quarter century to explain wage levels, wage differentials, wage changes and bargaining

outcomes, none has been as consistent as union membership.[176] One impor-tant distinction also is that this relationship has held up regardless of the way in which it has been measured. Whether union strength is re-presented as the percentage of workers in an industry who are unionized, the majority of workers in an industry or occupation who are unionized, or individual union membership status, union strength has shown a strong, positive relationship with a wide range of bargaining outcomes.[177]

The most appropriate level of union membership for research is that level at which collective bargaining actually occurs. If negotiations occur on an industry-wide basis, then the industry level of union mem-bership is more appropriate than alternative measures. If collective bargaining occurs at the plant level, then local union strength figures are more appropriate. A major problem with previous measures of union membership is simply that macro level measures have been used to make generalizations about all labor-management relationships, regardless of the level at which negotiations occurred in an industry.

Industry-wide union membership is important especially where unions have been particularly effective in penetrating the product market. Moreover, a large proportion of union members are covered by large unions

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[176] Robert J. Flanagan and Daniel J. B. Mitchell, "Wage Determination and Public Policy," in Industrial Relations Research in the 1970's: Re-view and Appraisal, eds. Thomas A. Kochan, Daniel J. B. Mitchell and Lee Dyer (Madison, WI: IRRA, 1980), 77-82; and Richard B. Freeman and James L. Medoff, "The Impact of Collective Bargaining: Illusion or Reality?" in U. S. Industrial Relations, 1950-1980, A Critical Appraisal, eds. Jack Stieber, Robert B. McKersie and D. Quinn Mills (Madison, WI: IRRA, 1981), 53-54.

[177] Kochan and Block.

and employers who negotiate at the industry level. Many smaller local unions, however, negotiate with but one employer at the plant level. Even when there is a heavy concentration of unionized firms in the product market, the logical starting point is at the plant level. Until the effect of plant level union membership is accounted for, the true impact of industry-level union density cannot be determined.

In the open shop environment where union membership may vary, it is possible to capture the impact of actual changes in union strength. Union strength is conceptualized as the percentage of persons covered by the bargaining unit who are also union members.

Changes in union strength were particularly important for this study since these changes may represent a clear reflection of the bargaining unit members' confidence in and support of the local union, particularly regarding collective bargaining. For example, an erosion of union membership may signal a loss of solidarity within the union or perhaps a loss of confidence in the local leadership. An increase may strengthen the union's power and resources. For this study, changes in the bargaining unit positions were factored into the measure of union stength, as well, since changes in the bargaining unit may also alter the percentage representing union strength. This study was the first to test for the effects of plant level union strength on bargaining outcomes.

Three specific hypotheses examined the impact of union stength on bargaining outcomes. The first hypothesis examined changes in union strength in plants which had not experienced an impasse. This is the normal experience for collective bargaining. The expectation was that increases (decreases) in union strength led to positive (negative) net

changes in collective bargaining outcomes. Stated differently, the stronger (weaker) the union, the greater positive (negative) change was expected, on average, in the new contract.

The data did not support H2(A) for either Virginia or Iowa. These results were surprising; however, it may signal that, on average, union strength was a more important concern during periods of crisis, such as an impasse, when the union is forced to put voluntary union membership to the test.

The second hypothesis regarding the impact of union strength on bargaining outcomes tested the assumption that an increase (decrease) in union strength during a strike led to a net positive (negative) change in the new contract. The data did not support H2(B). For example, results from the Virginia sample of six plants indicated a significant, negative relationship ($r = -.820$, $p < .023$) between changes in union strength and changes in bargaining outcomes. Although H2(B) was rejected because the relationship was opposite from the one hypothesized, it probably did not occur by chance.

A major question is what may have caused an increase in union strength to lead to decreases in bargaining outcomes. Since union strength is a ratio of union membership to bargaining unit membership, changes in either union membership or bargaining unit membership can affect the ratio. From the data in Table 46, it can be seen that for three of the six plants, there were no changes in either union membership or bargaining unit positions. However, in all three, positive changes were observed in bargaining outcomes.

Table 46

Changes in Union Strength

VIRGINIA

% Change in Bargaining Outcomes	Industry	International Union	Age of L&M Relationship (years)	Union Membership at Beginning of Strike	Union Membership at Beginning of New Contract	% Change in Union Membership (T_2-T_3)	Bargaining Unit Membership at Beginning of Strike	Bargaining Unit Membership at Beginning of New Contract	% Change in Bargaining Union Membership (T_2-T_3)
0	a	Teamsters	15	600	752	+25	1147	1147	0
+3.706	a	Laborers	22	795	565	−29	1172	1157	−1
+ .242	b	Alum., Brick & Glass Workers	9	131	131	0	214	214	0
+2.857	c	−	10	71	71	0	71	71	0
+1.632	d	Graphic Communications Workers	25	201	201	0	222	222	0
+2.195	e	Steelworkers	36	1045	945	−10	1140	1140	0

$\bar{X}$ = +1.772 $\bar{X}$ = +19.5 $\bar{X}$ = −2.33% $\bar{X}$ = −.16%

a = Food & Kindred Products
b = Fabricated Metal Products
c = Transportation Equipment
d = Rubber/Misc. Plastics Products
e = Primary Metals

In one of the plants in the Food and Kindred Products industry, the Teamsters local union gained 152 new members during the strike, an increase of about 25 percent. This was clearly a strong showing of support for the union since there were no changes in bargaining unit size. It should be noted, however, that this increase in union strength during the strike resulted in no net change in bargaining outcomes in the new contract.

For the other plant in the Food and Kindred Products industry, 230 union members (29 percent) abandoned the Laborers, while only 15 bargaining unit positions were lost (1 percent) during the strike. An interesting point is that this loss of union strength was associated with the largest increase in bargaining outcomes among the six plants. Moreover, the strike was settled in five days. Although not as dramatic, a similar situation occurred in the plant in the Primary Metals Products industry. During the strike, the Steelworkers lost 100 local union members due strictly to union member preference since no change occurred in bargaining unit positions. The attrition of union membership occurred over a much longer period of 63 days, however (see Table 44). This reduction in union strength also was associated with a positive net change in bargaining outcomes.

The net effect among the six plants was an average reduction in union membership of -2.33 percent compared with an average reduction in bargaining unit positions of only -.16 percent. The average increase in bargaining outcomes was about 1.77 percent. It may be that at least for two of these six plants, employers conveyed to union members the benefits of eliminating the union. One ploy among consultants is to attempt to

show union members how much better off they will be without the union. The payoffs in bargaining outcomes noted here could be a first step in a campaign by management to eliminate the union.

Union leaders should consider the tradeoff of losses in union membership against increases in bargaining outcomes associated with strikes. In several Virginia plants in which gains in bargaining outcomes where experienced, it occurred at great expense to union membership.

One other explanation for the reduction in union membership seems feasible. Even though the positive net change in bargaining outcomes occurred in both plants, it may be that while these particular outcomes were of value to union members, they may have represented deferred cost items to management or perhaps "no cost" changes in security provisions. These may have been desirable, but simply not the outcomes most desirable for those union members who quit the union.

The strike situation in Iowa proved to be opposite. Even though the relationship between changes in bargaining outcomes and changes in union strength was in the expected direction for the Iowa data, the relationship was not significant in a statistical sense. Table 47 reveals that four of the six strike plants exhibited no changes in union strength; however, for the two which did, reductions in bargaining union positions may have been responsible for the reduction in union membership. Thus for Iowa, changes in union strength were not due to a lack of solidarity within the union, but to reductions in the bargaining unit. For Iowa, at least, the positive relationship between changes in bargaining outcomes and changes in union strength was due to product demand and not anti-union sympathy.

Table 47

Changes in Union Strength

IOWA

% Change in Bargaining Outcomes	Industry	International Union	Age of Labor-Management Relationship (years)	Union Membership at Beginning of Strike	Union Membership at Beginning of New Contract	% Change in Union Membership	Bargaining Unit Membership at Beginning of Strike	Bargaining Unit Membership at Beginning of New Contract	% Change in Bargaining Unit Membership
-4.104	a	Auto Workers	14	65	65	0	65	65	0
.223	a	Molders and Allied Workers	5	142	136	-4	153	145	-5
.192	b	Auto Workers	11	418	418	0	428	428	0
-4.844	b	Machinists	3	11	11	0	26	26	0
-3.082	c	Steelworkers	24	289	113	-61	300	120	-60
.418	d	Auto Workers	20	95	95	0	101	101	0

$\bar{X}$ = -1.875 $\bar{X}$ = +12.83 $\bar{X}$ = -10.83% $\bar{X}$ = -10.83%

a = Fabricated Metals Products
b = Electric and Electronic Equipment
c = Primary Metals Products
d = Transportation Equipment

In this case, reductions in employment were associated with reductions in bargaining outcomes.

The third hypothesis stipulated that the impact of a percentage change in union membership during a strike would be even greater on a percentage change in bargaining outcomes than for the no-strike situation. This makes sense from the standpoint that there are almost always some union members with low committment to the local or to the ideals of unionism who will quit under the stress of a strike. Moreover, a strike may induce even highly committed union members to quit the union under the duress of economic pressure.

The Virginia sample of 42 plants did yield a statistically significant Z score when comparing the correlations in the strike and no-strike situation; however, the greater question is whether this relationship has practical relevancy. The correlation coefficients were both <u>negative</u> and <u>opposite</u> from the hypothesized relationships. For this sample it is true that changes in union strength have a greater impact on changes in bargaining outcomes during an impasse than during a conventional period of contract administration and although it does not support the line of reasoning used in H2(A) and H2(B), it does point out the relatively greater disruptive characteristics of strikes.

The labor relations climate in Virginia may be quite different from the one in Iowa, especially since there seemed to be considerably greater variance in union strength for both the strike and non-strike conditions in Virginia than in Iowa. Union and employer officials attempting to make generalizations about the association between changes in union strength and bargaining outcomes would be well advised to consider regional dif-

ferences in their labor relations policies and practices, particularly concerning periods of impasse. The spirit intended in H2(C) is captured in the Iowa data by the fact that the impasse situation does yield more dramatic results, even if the direction of the relationship is opposite than hypothesized.

Thus, with the exception of H2(C) for the Virginia data, union strength did not appear to have the predicted association with bargaining outcomes. The emphasis which unions have placed on securing 100 percent union membership in the bargaining unit would not appear to be warranted. It may well be that the concentration of union membership in the industry or in the local labor market exercise a stronger influence on bargaining outcomes.

One other explanation should be considered. It may be that the percentage change in union strength, per se, is the inapproprate measure for this study. The parties to negotiations may simply think in terms of the actual number of union members, not the percentage of union members in relation to the bargaining unit. Each union member represents one voice, one vote. Negotiators for the employer and for the union may react to the change in votes of dues paying members instead of "union strength," per se. The union's power may best be reflected in changes in union membership.

During telephone interviews most personnel directors were asked if they could estimate the percentage of union members in the bargaining unit. Few knew exactly. Most reacted that the union was either "weak" or "I believe that most belong." Whereas the percentage of union members in the bargaining unit may be a relevant theoretical measure, it may be

irrelevant for the actors unless it causes the union to be perceived as particularly weak or strong.

To address this question, additional correlations were run using changes in union membership as an independent variable. It was possible to see how well union membership, per se, compared with union strength in relationship with changes in bargaining outcomes. Information for the Virginia sample of non-striking plants for both independent measures with changes in bargaining outcomes for H2(A) is recorded in Table 48. As before, when the measure of union strength was used, the relationship was $r = -.121$ which was statistically nonsignificant, $p < .240$. When the measure of union membership was used, the resulting correlation was $-.017$, $p < .461$, a substantial reduction in explanatory power. Regardless whether union strength or union membership were used to help explain changes in bargaining outcomes, the hypothesis was not supported. However, union strength had superior explanatory power for this sample of non-striking plants.

Information for the Iowa sample of non-striking plants is provided in Table 49 for a test of H2(A) to determine whether union strength or union membership is the better predictor of changes in bargaining outcomes. As before, when the measure of union strength was used, the relationship was $r = .058$ which was statistically nonsignificant, $p < .374$. When the measure of union membership was used, the resulting correlation of $r = .201$ was statistically significant ($p < .131$), providing support for H2(A). For the Iowa sample of 33 plants, there was a positive relationship between a percentage change in union membership and a per-

Table 48

Alternate Test of Hypothesis 2(A)

VIRGINIA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Outcomes	36	.732	3.608	-8.712	8.301
% Change in Union Strength	36	1.135	21.093	-35.833	102.696
% Change in Union Membership	36	1.923	39.912	-50.000	173.333

Correlations

% Change in Union Strength	% Change in Union Membership
r = -.1214	r = -.0171
p < .240	p < .461

Table 49

Alternate Test of Hypothesis 2(A)

IOWA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bar-gaining Outcomes	33	.271	2.043	-4.807	11.684
% Change in Union Strength	33	-1.260	15.801	-40.000	34.375
% Change in Union Membership	33	-18.278	36.649	-86.154	107.692

Correlations

% Change in Union Strength	% Change in Union Membership
$r = .0583$	$r = .2012$
$p < .374$	$p < .131$

centage change in bargaining outcomes. Hence, for this Iowa sample, union membership was the superior measure of unionism.

Information for the Virginia sample of six plants which experienced strikes is provided in Table 50 for a test of H2(B) to determine whether union strength or union membership is the better predictor of changes in bargaining outcomes following a strike. As before, when the measure of union strength was used, the correlation coefficient was -.820, significant at $p < .023$. Although statistically significant, this relationship was in the opposite direction than hypothesized. Substituting the measure of union membership, the resulting correlation coefficient was -.821, again significant ($p < .023$) and opposite from expectation. While it is true that union membership provided a slightly stronger correlation, neither may be considered a predictor in the context of H2(A) for the Virginia data.

The results of an alternate test of H2(B) for Iowa strike plants are recorded in Table 51. When union strength was correlated with a change in bargaining outcomes, the coefficient of correlation was .373. Although in the anticipated direction, it was a nonsignificant relationship ($p < .233$). When the union membership measure of unionism was used, the r fell to .217, which was also nonsignificant ($p < .340$). Thus, for Iowa, union strength was superior to union membership in explaining changes in bargaining outcomes, although neither was statistically significant.

A comparison of measures of unionism in their relationship with changes in bargaining outcomes may be found in Tables 48 through 51. The union strength measure, a ratio of union membership to bargaining unit membership, was superior to union membership, alone, in three of the four

Table 50

Alternate Test of Hypothesis 2(B)

VIRGINIA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bar- gaining Outcomes	6	1.772	1.456	0	3.706
% Change in Union Strength	6	-2.041	17.279	-28.009	25.333
% Change in Union Membership	6	-2.194	17.558	-28.931	25.333

Correlations

% Change in Union Strength	% Change in Union Membership
r = -.8197	r = -0.8206
p < .023	p < .023

Table 51

Alternate Test of Hypothesis 2(B)

IOWA SAMPLE

Variable	n	Mean	s.d.	Minimum	Maximum
% Change in Bargaining Outcomes	6	-1.875	2.428	-4.894	.418
% Change in Union Strength	6	-.198	1.090	-2.249	1.059
% Change in Union Membership	6	-10.854	24.575	-60.900	0

Correlations

% Change in Union Strength

r = .3730
p < .233

% Change in Union Membership

r = .2168
p < .340

hypotheses. However, in the Iowa sample of plants which had not experienced a strike, union membership was superior, revealing a statistically significant, direct relationship between changes in union membership and changes in bargaining outcomes. This raised a legitimate concern regarding whether union strength or union membership was the appropriate construct for analysis. Future research should address the conditions under which union power would best be reflected by changes in union membership or the more complex measure of changes in union strength.

One final note is in order regarding the impact of union strength on bargaining outcomes for these two samples. Virginia and Iowa constitute very different environments regarding union sentiments. The effect of union strength on bargaining outcomes in plants which did not experience a strike was unremarkable; however, the strike situation, which puts union solidarity to the test, yielded quite remarkable differences.

Union strength was very stable during impasses in Iowa. Where changes in union membership occurred, it apparently happened because bargaining unit positions had been eliminated. The Virginia plants proved to be more volatile. Union members were less willing to support the union during a strike, and while gains occurred in bargaining outcomes in two plants, it was at considerable expense to union membership. In the one plant in which a large number of persons supported the union by joining, it was ineffective in achieving gains through collective bargaining. One implication of this finding is that firms with plants in both states probably could not deal effectively with their respective unions during strikes by employing the same strategies in both states.

Decertification Attempts

Decertification attempts are on the upswing in U.S. manufacturing, a trend spanning more than a decade.[178] While there is some evidence that decertifications are induced through outside consultant interventions,[179] the ultimate decision to decertify a local union rests with the bargaining unit members. A decertification signals a loss of confidence in the local union leadership, a restoration of faith in the employer, or, perhaps, both.

Decertifications are physical manifestations which represent significant changes for local union members. Although the same national union or another national union may later represent employees from a plant, the current local union is "out of business" for at least one year. A somewhat less drastic step involves the "threat" of decertification.

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[178] John C. Anderson, Gloria Busman and Charles A. O'Reilly, III, "What Factors Influence the Outcomes of Decertification Elections?" _Monthly Labor Review_ 102, 11 (November, 1979), 32-36; James B. Dworkin and Marian M. Extejt, "Recent Trends in Union Decertification-Deauthorization Elections," _Proceedings of the Thirty-Second Annual Meeting, Industrial Relations Research Association,_ (Madison, WI: IRRA, 1979), 233-234; and, Ronald L. Seeber and William N. Cooke, "The Decline in Union Success in NLRB Representation Elections," _Industrial Relations_ 22, 1 (Winter, 1983), 34; and, Dennis A. Ahlburg and James B. Dworkin, "The Influence of Macroeconomic Variables on the Probability of Union Decertification," _Journal of Labor Research_ V, 1 (Winter, 1984), 13-29.

[179] John Lawler, "Labor-Management Consultants in Union Organizing Campaigns: Do They Make A Difference?" _Proceedings of the Thirty-Fourth Annual Meeting, Industrial Relations Reseasrch Association,_ (Madison, WI: IRRA, 1981), 374-380; and, Kent F. Murrmann and Andrew A. Porter, "Employer Campaign Tactics and NLRB Election Outcomes: Some Preliminary Evidence," _Proceedings of the Thirty-Fifth Annual Meeting, Industrial Relations Research Association,_ (Madison, WI: IRRA, 1982), 67-72.

Disgruntled union members may "talk up" decertification because they distrust or dislike the leaders or perhaps because their interests have not been served through the negotiations process and/or the grievance procedure. Some of these threats can even be healthy for the union. For example, small groups of disgruntled employees may draw mainstream members closer together to form a more cohesive majority. However, during times of economic disparity when employers may be perceived as willing to use layoffs or perhaps even close a plant, a ground swell of support may be evidenced for decertification if it is believed that such will improve employee welfare. Even though it is illegal to do so, some employers encourage union members to follow this latter line of reasoning.

Decertification threats may range from discussions among employees who are union members about the possibility, to a formal petition for a decertification election, to an actual election. Thus, the threat may be more intense for a local union as one moves along this continuum.

Hypothesis 3 offered an opportunity to test whether decertification attempts were meaningful as a deterrent to the union's power to secure better outcomes through negotiations. However, few observations of decertification attempts were recorded. In Virginia only one observation of decertfication activity was reported. A "no-strike" plant which manufactured non-electrical machinery experienced informal meetings by union members to discuss the possibility of decertifying the local for the Oil, Chemical and Atomic Workers which represented them. This plant did experience a reduction in bargaining outcomes (-2.176 percent); however, one observation among 36 does not allow for meaningful statistical comparison.

In Iowa, there was also only one observation of decertification activity. In a "no strike" plant in the chemical and allied products industry, union members petitioned the National Labor Relations Board to decertify their local union affiliated with the Machinists. This apparently had no effect on bargaining outcomes as no change was observed.

Neither Virginia nor Iowa had sufficient data to provide the necessary contrast between plants which experienced decertification activity and those which did not. Thus, no support was provided for Hypothesis 3(A), which explored the impact of decertification attempts during the course of normal labor-management relations on bargaining outcomes.

There were no reports of decertification activities in plants which experienced strikes, thus Hypotheses 3(B) and 3(C) could not be tested. It may be that strikes have the effect of pulling mainstream union members closer together, i.e., the employer is perceived as an external threat to group survival. Under these circumstances, it would seem futile for dissenters to push for a decertification. It may make more sense to them to simply quit the union. Quitting symbolizes a reduction of union strength and may be as threatening to the union's power to secure desirable bargaining outcomes as "talking up" a decertification.

Product Market Competition

Today, product market competition makes the strongest argument for compromise in labor-management relations. Competition is intense in manufacturing not only from nonunion firms on the domestic scene, but from

some foreign countries where labor costs are particularly low such as Korea, Formosa, Singapore, and Mexico.[180]

The exercise of union bargaining power is significantly impacted by the employer's "ability to pay," an underlying theme in this section. Several variables were used in this study to reflect the employer's ability to pay as this related to changes in bargaining outcomes. The first of these was changes in employment in the bargaining unit.

Bargaining Unit Employment

One natural byproduct of a decrease in product demand is layoffs. When employers face stiff competition for protracted periods, their behavior is predictable. First, they must cut prices in order to compete. Next, they cut costs to keep the impact of reduced revenues to a minimum. Among these costs are labor costs. As demand drops so does employment. Carried to its logical conclusion, cost cutting also affects the outcomes of collective bargaining. When product demand is low and revenues are low, the local union may realize little gain through collective negotiations. As discussed earlier, concession bargaining by labor and management in many industries has led to "give backs" by the union. Thus, a natural relationship exists between employment loss in the bargaining unit, where most layoffs occur, and changes in bargaining outcomes.[181]

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[180] D. Quinn Mills, "When Employees Make Concessions, Harvard Business Review 61, 3 (May, 1983), 103.

[181] Warner Woodworth, "Collective Bargaining: Concessions or Control?" Proceedings of the Thirty-Fifty Annual Meeting, Industrial Relations Research Association (Madison, WI: IRRA, 1982), 418-424; Peter Cappelli, "Union Gains Under Concession Bargaining," Proceedings of the Thirty-Sixth Annual Meeting, Industrial Relations Research Association (Madison, WI: IRRA, 1983), 300-302; Peter Capelli, "Conces-

On the other hand, an increase in product demand should lead to increases in employment, and, ostensibly, greater profit for the employer.

It was hypothesized that a positive relationship existed between a percentage change in bargaining unit employment and a percentage change in bargaining outcomes. In essence, this stated that as layoffs increase, the local union is faced with decreased outcomes from the old contract to the new one. Conversely, increases in employment should signal greater financial strength for the plant and result in improvements in bargainng outcomes.

For the Virginia plants which did not experience strikes, almost no relationship existed between changes in bargaining unit employment and changes in bargaining outcomes. However, the data for the Iowa sample upheld H4(A)1. The data depict a slight percentage increase in bargaining outcomes, on average of about .271. The average percentage change in bargaining unit employment was approximately -17.24. Thus in Iowa, changes in bargaining unit employment meant layoffs. These tended to be associated with only slight increases in bargaining outcomes. Indeed, 24 of the 33 Iowa plants experienced layoffs during the study period, resulting in decreased bargaining outcomes for 13 plants and no change in 11.

sion Bargaining and the National Economy," Proceedings of the Thirty-Fifth Annual Meeting, Industrial Relations Reserach Association (Madison, WI: IRRA, 1982), 362-371; and Wayne R. Wendling, "Collective Bargaining Over Plant Closure," Proceedings of the Thirty-Fifth Annual Meeting, Industrial Relations Research Association (Madison, WI: IRRA, 1982), 410-417.

When this hypothesis was tested in strike plants, none of the data provided support. Indeed, the results from the Virginia sample depict a fairly strong and statistically significant _inverse_ relationship between bargaining unit employment and bargaining outcomes ($r = -.651$, $p < .081$). Although this does not provide support for H4(B)1, this inverse relationship probably did not occur by chance.

The range of scores for the percentage change in bargaining unit employment was from zero to -1.00. A distribution of changes in bargaining unit employment (membership) is shown in Table 46. For this sample of six plants, five experienced no change in employment. In two of these plants positive changes in bargaining outcomes obtained. The greatest positive change in bargaining outcomes occurred in the plant which experienced a one percent decrease in bargaining unit positions. The scores for a percentage change in bargaining outcomes range from zero to 3.71. So, for the six Virginia plants, when a change occurred in bargaining outcomes, it was favorable for unions.

The one plant in the data which experienced a decrease in bargaining unit positions probably distorted the relationship between bargaining unit employment and bargaining outcomes considerably. This unit was the plant in the Food and Kindred Products industry represented by the Laborers which also experienced a 29 percent decrease in union membership during the strike. In this case, it was undoubtedly _not_ the change in bargaining unit positions, per se, which accounted for the positive change in bargaining outcomes, but the change in union membership possibly associated with a ploy by the employer to reduce union power.

The implications for this hypothesis are straight forward. Labor-management relations are quite complex, especially during strikes when many issues may come into play. Clearly, the interaction of the several issues should be considered in the formulation of one's expectations for changes in bargaining outcomes.

When the impact of changes in bargaining unit employment on bargaining outcomes was compared for the strike and no-strike situation, strikes apparently made little difference. H4(C)1 was rejected for both Virginia and Iowa.

One other major issue involved the possibility that changes in bargaining unit employment and changes in bargaining outcomes were related in a spurious fashion. That is, it was believed that the relationship depicted in H4 might exist only because of the joint association of bargaining unit employment and bargaining outcomes with a third variable, unemployment in the local labor market.

It is reasonable to assume that the area unemployment rate would impact either bargaining unit employment or bargaining outcomes, or both. The general economic conditions in the plant's relevant labor market have implications for the supply of qualified labor. The threat of replacement by readily available labor may create a depressing effect on bargaining demands. Moreover, the unemployment rate in the local labor market may be contributed to by manufacturing plants. If the plant is a vendor for other local industries, there is potentially an even stronger relationship since the employment level of the vendor is intricately tied to those plants which it supplies.

In order to tell whether a spurious relationship prevailed, the effects of unemployment in the local labor market were removed from the relationship between bargaining unit employment and bargaining outcomes. Once this effect was "controlled for," a spurious relationship was in evidence if the relationship between bargaining unit employment and bargaining outcomes disappeared altogether. The more likely event was a reduction in the relationship. Whereas the local unemployment picture should have affected bargaining outcomes, the changes "closest to home" should have had the stronger impact. Generally, the message is much stronger to local union members when their ranks are involuntarily reduced than when neighbors experience layoffs.

To assess the extent to which H4 reflected spurious relations, partial correlation analysis was used to "partial out" the effect of unemployment in the local labor market from the relationship between bargaining unit employment and bargaining outcomes. It was desirable to make this distinction for the strike and for the no-strike situations alike.

For the Virginia sample of plants which did not experience a strike, the relationship between changes in bargaining unit employment and bargaining outcomes was quite weak (r = .101) and nonsignificant (p < .295). While it is true that controlling for area unemployment reduced the r value, as predicted, it is obvious that such a reduction is meaningless given the magnitude of the zero order correlation coefficient. Thus, the hypothesis was not upheld for the Virginia sample.

For the Iowa sample, which supported H4(A)1, controlling for unemployment in the local labor market produced results opposite from those

hypothesized. Instead of a spurious relationship between bargaining unit employment and bargaining outcomes, a "suppression effect" was witnessed. Stated differently, instead of the unemployment rate in the local labor market eliminating the effect that bargaining unit employment had on bargaining outcomes, it actually "masked" a more powerful relationship between these variables.[182] When the effects of unemployment in the local labor market were removed from H4, the correlation coefficient between bargaining unit employment and bargaining outcomes actually achieved greater magnitude.

An examination of Table 52 will help explain this outcome. Bargaining unit employment and local labor market unemployment are negatively related to one another ($r = -.05$, $p < .394$). Even though the relationship is slight, removal of this effect by controlling for local labor market unemployment allows for greater variation between bargaining unit employment and bargaining outcomes.

Also obvious from this table is the strong positive independent relationship both measures of employment have with bargaining outcomes. In setting wage and non-wage negotiations targets, one must consider the potential impact of specific bargaining unit reductions _and_ area unemployment.

Extending the control of area unemployment to strike plants, we are again confronted with the statistically significant _inverse_ relationship

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[182] For a concise description of suppression effects, see: Daniel C. Ganster, Harry W. Hennessey, and Fred Luthans, "Social Desirability Response Effects: Three Alternative Models," _Academy of Management Journal_ 26, 2 (June, 1983), 324.

Table 52

Intercorrelations Among Bargaining
Outcomes, Bargaining Unit Employment
and Local Unemployment for Virginia,
No-Strike Plants

	LLMU[1]	BUE[2]	BO[3]
LLMU	1.0	-.05 (.394)[4]	.2802 (.057)
BUE		1.0	.2294 (.111)
BO			1.0

1 - Local Labor Market Unemployment
2 - Bargaining Unit Unemployment
3 - Bargaining Outcomes
4 - Numbers in parentheses represent alpha probability levels

between changes in bargaining unit employment and changes in bargaining outcomes. This occurred in the Virginia sample. Since this was probably not a chance finding, the control for unemployment in the local labor market was applied. This had the predicted effect of reducing the zero-order correlation coefficient. Even after removing the effect of area unemployment, the relationship remained negative and statistically different from zero. Thus, while area unemployment played a role in the determination of changes in bargaining outcomes, it was not sufficient in this case to undermine the impact of changes in employment in the bargaining unit on these outcomes.

Finally, controlling for area unemployment in a comparison of strike plants with no-strike plants was meaningless for this data. There were insufficient data available within states to allow for statistical comparison of strike versus no-strike conditions for Virginia or for Iowa.

Plant Closing Communications

Plant closings are taking place in record numbers in the U.S. Plant closings are a logical extension of the points developed earlier in the discussion of layoffs. Under the pressure of competition and, perhaps, an inability to cut costs enough, many manufacturing plants are closing. The fear of this possibility has undoubtedly led to much of the concession bargaining in this country, and particularly the midwest where manufacturing seems especially depressed. [183]

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[183] J. John Palen and Frank J. Fahey, "Unemployment and Reemployment Success: An Analysis of the Studebaker Shutdown," Industrial and Labor Relations Review, 21, 2 (January, 1968), 234-250; James L. Stern, "Consequences of Plant Closure," Journal of Human Resources, VII, 1 (Winter, 1972), 3-25; Barry Bluestone and Bennett Harrison,

While employers have generally decried "hard times" in negotiations, unions are beginning to take them more seriously. The communication of a potential plant closing to the union should have a predictable negative impact on bargaining outcomes. Indeed, one would expect such communications to lead to concession bargaining, a drastic step union members seem willing to undergo in order to maintain employment. The expectation for this study was that for those plants in which the employer communicated the possibility of a plant closing, changes in bargaining outcomes would be negative.

Regrettably, H5 was not supported for any of the data in the normal negotiations situation. In Virginia, one plant in each category representing Textile Mill Products (Clothing and Textile Workers), Electric and Electronic Equipment (Electrical Workers), and Miscellaneous Manufacturing (Carpenters), reported having made plant closing threats in the no strike situation. The percentage change in bargaining outcomes were 1.03, -8.71, and +3.74, respectively.

For Iowa, three plants reported having made plant closing threats in the no strike situation. One in the Electric and Electronic Equipment industry (Graphic Communications Workers) reported a percentage change in bargaining outcomes of -3.57. Two plants were in the Non-Electrical Machinery industry, both of which were represented by the Machinists.

The Deindustrialization of America: Plant Closings, Community Abandonment, and the Dismantling of Private Industry (New York: Basic Books, 1982), 48-91; and Nancy R. Folbre, Julia L. Leighton, and Melissa R. Roderick, "Plant Closings and their Regulation in Maine, 1971-1982," Industrial and Labor Relations Review, 37, 2 (January, 1984), 185-196.

One plant reported a percentage reduction in bargaining outcomes (-.705), while the other reported a net gain in bargaining outcomes (2.46). When compared with the many other plants in Iowa, many of which also experienced reductions in bargaining outcomes, the effect of plant closure communications was practically nil.

When H5 was tested for plants which experienced strikes, the hypothesized effect was found for the Virginia sample; however, only one plant reported having made a plant closing threat during a strike (Table 53). A Virginia plant in the Fabricated Metals industry made a plant closing communication to local union members affiliated with the Aluminum, Brick, and Glass Workers. Virtually no change in bargaining outcomes (.242 percent) occurred in this plant following the strike; however, for the five remaining plants which did not threaten plant closure, changes were relatively larger with but one exception. For the plant in the Food and Kindred Products industry represented by the Teamsters, no change in bargaining outcomes occurred. So, for this sample of six strike plants, the hypothesized effect was realized because the one plant which conveyed a plant closure communication to the local union had a considerably smaller net gain in bargaining outcomes than for most of those plants which did not pose such a threat.

In the Iowa sample, no plant closure threats were reported (Table 54). Thus it was not possible to compare the impact of plant closure communications on bargaining outcomes for strike versus no-strike conditions.

Table 53

Distribution of Reported Plant Closing Threats

VIRGINIA

% Δ in B.O.	Industry	International Union	Age of L&M Relationship (years)	Incidence of Plant Closure Threat
)0	Food & Kindred Products	Teamsters	15	no
+3.706	Food & Kindred Products	Laborers	22	no
+ .242	Fabricated Metal Products	Alum., Brick & Glass Workers	9	yes
+2.857	Transportation Equipment	Alum., Brick & Glass Workers	10	no
+1.632	Rubber/Misc. Plastics Products	Graphic Communications Workers	25	no
+2.195	Primary Metals	Steelworkers	36	no

$\bar{X} = +1.772$ $\bar{X} = +19.5$ years

Table 54

Distribution of Reported Plant Closing Threats

IOWA

% Change in Bargaining Outcomes	Industry	International Union	Age of Labor-Management Relationship (years)	Incidence of Plant Closure Threat
-4.104	Fabricated Metals Products	Auto Workers	14	no
+ .223	Fabricated Metals Products	Molders and Allied Workers	5	no
+ .192	Electric and Electronic Equipment	Auto Workers	11	no
-4.889	Electric and Electronic Equipment	Machinists	3	no
-3.082	Primary Metals Products	Steelworkers	24	no
+ .418	Transportation Equipment	Auto Workers	20	no

$\bar{X}$ = -1.875% $\bar{X}$ = +12.83 years

One strong possibility with this variable is that personnel directors provided socially desirable responses.[184] This would certainly make sense for the Iowa sample since the plight of the midwest and Iowa has has been newsworthy. It may be that even though the possibility of a plant closure was communicated to employees both before _and_ after expiration of the first contract, employers were not completely candid in their questionnaire response to the item measuring plant closure communication.

Labor Intensity

Essentially, labor intensity is the proportion of an employer's total costs contributed by labor costs. This labor-to-total cost ratio has a rich history in studies of wage determination.[185] Labor intensity has been used but once to explain both financial and non-financial bargaining outcomes.[186] It proved to be a much stronger predictor of the financial outcomes, similar to prior research. However, the dependent variable measured only the _level_ of bargaining outcomes. Given the wide

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[184] Socially desirable response bias is problematic for virtually all questionnaire items; however, it is stressed in this case because the responses to this questionnaire item are blatantly misrepresentative of traditional labor-management relations experience. See Hugh J. Arnold and Daniel C. Feldman, "Social Desirability Response Bias in Self-Reported Choice Situations," _Academy of Management Journal_ 24, 2 (June, 1981), 378.

[185] George E. Johnson, "Economic Analysis of Trade Unions," _American Economic Review_, LXV, 2 (May, 1975), 24; and Wallace Hendricks, "Labor Market Structure and Union Wage Levels," _Economic Inquiry_, XIII, 3 (September, 1975), 401-416.

[186] Peter Feuille, Wallace E. Hendricks, and Lawrence M. Kahn, "Wage and Nonwage Outcomes in Collective Bargaining," _Journal of Labor Research_, II, 1 (Spring, 1981), 39-53.

variety of items in a contract which have an impact on the employer's ability to pay (i.e., increase in holiday/vacation days or severance pay), and the clamor for <u>reductions</u> in monetary items during the recent era of concession bargaining, labor intensity was a logical choice for inclusion in the present study.

Traditionally, firms with high labor costs have paid lower wages than firms which are more capital intensive. Thus the degree of labor intensity has especially strong implications for the employer's ability to pay. During periods of strong product market competition, employers with high labor costs relative to total costs will be particularly stressed. Their ability to grant changes which represent monetary costs would be nil. Moreover, their need for flexible work rules would tend to cut down on changes in seniority and job secuity which union members may ask for as tradeoffs to wage and fringe benefit concessions. Consequently, it was expected that for plants characterized as relatively labor intensive, changes in bargaining outcomes would be relatively low. Stated differently, H6 stipulated a negative relationship between the degree of labor intensity at the expiration of the old contract and changes in bargaining outcomes reflected in the new contract.

Again, the results of statistical analysis provided no support for this hypothesis. Moreover, there was virtually no relationship between this "ablity to pay" issue and changes in bargaining outcomes. Several reasons for this are possible. First, it may be that <u>changes</u> in the employer's ability to pay are more relevant. Clearly this would reflect the employer's reaction to product market competition and his or her ability to minimize costs in the short run.

Second, "lagging" this variable for some reasonable period prior to expiration of the old contract may have provided some evidence of labor intensity on actual negotiations. Negotiations objectives were undoubtedly set before expiration of the first contract.

In either case, it was not possible to collect this information. Results from a pilot study indicated that personnel directors were willing to provide this most recent estimate only. Employers demonstrated great apprehension in providing financial ratios. The ratio of labor costs to total costs at this point in time was a compromise to which most could agree.

Finally, there is the possibility that labor intensity is only associated with wages as was implied in an earlier study of both financial and non-financial bargaining outcomes.[187] This seems unlikely since a great many of the contract items are strongly related to monetary issues. While increases in such things as vacation pay, number of vacation days, holiday pay, number of holidays, severance pay, and cost of living indexation may not have an immediate effect on the employer as do wages, they are all monetary costs which reflect changes from the old to the new contract.

Limitations of the Study

Sample Selection

A fundamental concern in data analysis is the random selection of samples. An assumption of most inferential statistical techniques is the

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[187] Feuille, Hendricks, and Kahn.

random assignment of subjects to various treatments such that one may make generalizations about the results to the population from which the sample was drawn.

Random assignment of subjects was not possible for this project due to the difficulty of securing survey participants. The sensitive nature of the data required painstaking effort to convince personnel directors to participate in this study.

Sample size for both states was low and although statistically significant relationships were found for samples as small as six, small sample size forces the effect size to be unusually large in order to achieve statistical significance. This was problematic for both state samples.

The distribution of industries was rather "one sided" for Iowa, although there were dominant industries for both states. A similar experience was found for the sample distributions of national unions with which local unions were affiliated.

Data Collection Techniques

Self selection and demand characteristics are fairly commonplace in survey research. Personnel directors selected themselves into this study and were not altogether objective regarding their reasons for participating. Much of the data were objective measures of organizational variables; however, its collection, recording, and transmission to the researcher left room for error. Furthermore, some of the questionnaire items asked for subjective responses which may have led to guessing, omissions and/or socially desirable responses.

Causality

This study employed an <u>ex post facto</u> design with a cross-sectional, correlational methodology. It was not intended to infer causal linkages between study variables. Rather, associations were sought as a basis for determining directionality of the relationships and the likelihood that these relationships would occur by chance alone. Moreover, it was a research objective to use this knowledge as a basis for developing more sophisticated causal models for future research. It should be stressed that whereas the design and methodology were adequate for the research objectives, causality cannot be implied from the results.

Measurement Issues

Reliability

Reliability of measurement is a critical element in the reduction of measurement error. In this study, respondent errors of measurement were beyond the researcher's control. An important consideration that was within the control of the researcher was measurement of the dependent variable - changes in bargaining outcomes.

A manual was provided by the University of Illinois, Institute of Labor and Industrial Relations for coding of contract items. A two-person, double-check procedure was used to identify changes in contract items which occurred between contracts; however, the coding of contracts was done exclusively by the researcher. The coding manual provided instructions for coding; however, some human judgment was required for the selection of the appropriate numerical value from the manual for each contract item. Practice sessions were undertaken by the researcher for

approximately one week prior to the formal coding for this study. Questions were developed and an expert in labor-management relations at the University of Illinois was consulted for answers. Following practice sessions and clarification of a few issues about the coding manual, coding was more a matter of transcription than human judgment. The language in the contracts when compared with the coding manual was quite uniform. To the extent that errors of judgement were involved, they constituted systematic error since only one rater was used. Thus even though unintended errors of measurement may have occured, they tended to be consistent across all pairs of contracts.

Several weeks following completion of contract coding, a check was made for coding consistency. Contract pairs were placed in boxes separated by state. Five contract pairs were selected at random from each box and recoded. A comparison of each newly coded contract with its originally coded mate showed a perfect correspondence for all 10 contract pairs. Although this was again done by the researcher, the random selection process did provide some evidence of reliability.

Validity

Validity of measurement addresses the issue of accuracy of measurement. Of key importance for this study was the "content validity" of the coding scheme for contracts. This aspect of the study was a strong point as the items within the coding manual were drawn from virtually the entire domain of possible contract items. The manual was comprised of items found in documents provided by the Bureau of Labor Statistics, U.S. Department of Labor. Thus items found in the manual were simulations of what one would find for a broad range of contracts in manufacturing in-

dustries. Although the BLS documents represent unions with 1,000 members or more, they reflect what one would find in smaller units as well. This is true for several reasons.

First, innovations in labor-management relations generally occur in larger unions where resources are sufficient to support joint efforts by labor and management for "experiments." Joint labor-management productivity committees, sabbaticals, and the use of interest arbitration in the private sector are such example.

Second, smaller unions tend to imulate the practices of these larger unions. Once the innovations have demonstrated value for the larger unions, they are sometimes adopted by smaller unions. Content validity does not lead one to assume construct validity, however. No attempt has been made to determine the extent to which total bargaining outcomes or dimension of bargaining outcomes measure the concepts which they claim to measure.

Internal validity was provided on a limited basis for the research model as partial support was given some of the research hypotheses. Since this is the first time several of the variables have been measured as they were in this study, this partial support is not discouraging.

External validity refers to the generalizability of research findings to other settings. External validity is problematic for this study as the manufacturing plants in two right-to-work states were not randomly selected. Until generalizations may be made less tentatively in the present populations, generalization of the results to other settings must wait. As this particular line of research moves from the ex-

ploratory stage to predictive studies, both internal and external validity may be improved.

Conclusion

Evaluation of the Research Model

The research model depicted bivariate linkages between sources of bargaining power and changes in bargaining outcomes from one contract to the next. Of importance to this study, two major categories of bargaining power were assessed. The first, union power, specified the <u>direct</u> impact that sources of union bargaining power had on changes in bargaining outcomes. The second, product market competition, actually tapped sources of management's bargaining power.

Union Power

Union power was represented by three sources: (1) union militancy, (2) union strength, and (3) decertification attempts. The first two are traditional variables, whereas decertification attempts reflect more contemporary concerns. All were felt to typify union bargaining power within the study period.

Union Militancy

Strikes have generally been recognized as the most pervasive form of union militancy on bargaining outcomes and played the most important role in this project. First, the <u>incidence of strikes</u> was hypothesized to have a positive effect on changes in bargaining outcomes. Surprisingly, however, virtually no relationship was found. Second, strike duration, or number of strike days inclusive, was hypothesized to be positively associated with changes in bargaining outcomes. Indeed, when

strike plants from Iowa were isolated from the others, this hypothesis was upheld. Longer strikes did lead to more favorable contracts for unions in the Iowa manufacturing plants.

Strikes were also used to "condition" hypotheses 2-5. It was believed that impasses in labor-management relations created special, disruptive conditions which would give unusual weight to the study hypotheses dealing with strikes relative to situations in which strikes had not occurred. Thus hypotheses 2-5 had three parts each. The first assessed the impact of the hypothesized relationship for plants which had not experienced strikes during the study period. The second assessed the impact of the hypothesized relationship for plants which _had_ experienced strikes during the study period. The third stipulated that the hypothesized relationship for the strike plants would be significantly greater than the hypothesized relationship for the no-stike plants. Each of these three conditons will be addressed for the discussion of hypotheses 2-5 which follows.

Union Strength

The second source of union power, union strength, was measured as the change in the local union membership as a proportion of bargaining unit membership. While strikes have received the lion's share of attention regarding union power, union strength has been the most consistent predictor of a wide range of bargaining outcomes. A positive relationship was hypothesized between a percentage change in union strength and a percentage change in bargaining outcomes. This assumption was not realized in the no-strike plants, strike plants, or in the comparison of these

plants. It should be noted, however, that a significant _inverse_ relationship was detected for the Virginia sample in the strike condition.

The findings regarding union strength are noteworthy despite the fact that the hypothesized relationships were not realized. Since 1947, labor organizations, employers, and special interest groups representing both have expended considerable resources over the issue of compulsory union membership. Results from this study suggest that when union membership is allowed to vary, as in the open-shop environment, it has little impact on plant-level negotiations when changes in the entire contract are considered. Moreover, this result is not an artifact of measurement. When union membership, per se, was used as an alternative measure of union strength, the results were quite similar. In either event, union strength is ineffective as a source of union bargaining power during plant-level negotiations, as least for these samples.

Local union leaders who wish to enhance union bargaining power would not be advised to pursue a policy of union membership maximization to the exclusion of other local imperatives.

Decertification Attempts

The third source of union bargaining power was decertification attempts. Decertification attempts were portrayed as a range of activities from informal discussions to "talk up" decertification, to an actual decertificaton petition, to an actual decertification election. Each activity represented a greater degree of intensity for this variable as it was assumed that movement along this continuum represented an deescalation of local union bargaining power. A negative relationship was hypothesized between decertification attempts and a percentage change in

bargaining outcomes during the study period. This was not supported for any of the three conditions, and, in fact, no decertification activity was reported for firms which experenced strikes.

It is true that decertifications have increased rather dramatically from year-to-year during the study period. Another reality is that de-certifications constitute a relatively small percentage of both total NLRB elections and total labor-management relationships. Even so, it was anticipated that the number of attempts by bargaining unit members to decertify the local union would be appreciably greater than actual de-certifications. Since this variable was measured to allow for a range of activities leading to a petition for decertification, it is surprising that so few observations were reported.

Almost every bargaining unit in an open-shop environment has its dissenters, even among those who are union members. Among the dissenters, discussions regarding decertification and other anti-union activities may be commonplace and largely ignored by the personnel director. In this case, respondents may not have reported discussions about decertification as they were not interpreted as purposeful.

It is interesting that no decertification activity was reported for plants which experienced strikes. Undoubledly, the conditions which warranted a strike to begin with were serious enough for union members to pull together for the occasion. Barring very unusual circumstances, it may be that dissenting union members simply quit the union as an ex-pression of their sentiments.

Product Market Competition

Product market competition represents a threat to management's

ability to grant concessions to the local union during negotiations. Hence, the employer's _inability_ to compete is viewed as diminishing union power, in a sense. Produce market competition is represented by three sources: (1) bargaining unit employment, (2) plant closing communication, and (3) degree of labor intensity. The first two were more contemporary issues, whereas the third was selected based upon the more traditional research.

Bargaining Unit Employment

The employer's market share has definite implications for changes in bargaining unit employment as employment tends to fluctuate with the financial health of the employer. A positive relationship was hypothesized between changes in bargaining unit employment and changes in bargaining outcomes. This assumption was supported for the Iowa data in the no-strike situation. It was not supported by any of the data in the strike situation. Indeed, a significant _negative_ relationship was found in the Virginia strike data between bargaining unit employment and bargaining outcomes. When the comparison was made for the strike versus no-strike situatons, no significicnt relaionship was evidenced.

For the Iowa data in which a significant, positive relationship was found between changes in bargaining unit employment and changes in bargaining outcomes, the financial condition of the farm impliment industry undoubtedly played a major role. Concession bargaining was in evidence in the Iowa plants in which changes in bargain unit employment tended to mean layoffs.

The Virginia plants were representative of a very different distribution of industries. They were apparently not affected as greatly

by product market competitive factors as changes in bargaining unit employment tended to reflect employment growth.

Area unemployment was "controlled" to test for a spurious relationship between bargining unit employment and bargaining outcomes. The notion was that the "true" impact of employment on bargaining outcomes was the measure of <u>unemployment in the local labor market.</u> Contrary to expectations, a "suppressor effect" was detected for the Iowa no-strike data. Unemployment in the local labor market actually "masked" a stronger relationship between bargaining unit employment and bargaining outcomes. Because of unavailable data, a comparison could not be made between the strike and no-strike plants while controlling for the effects of area unemployment.

Plant Closure Communications

Consistent with the trend of increased foreign and domestic competition was a record number of plant closures. The actual fear of a plant closing may do more to condition bargaining behavior than the reality. While some employers may simply use it to threaten employees, the employer's communication to the union that a plant closing may be eminent may lead to concessions from the union during contract negotiations. It was hypothesized that a plant closure communication was negatively related to changes in bargaining outcomes. This assumption was not supported by any of the data. In the Iowa sample, no plant closure communications were reported in no-strike plants; thus, a comparison of the strike plants with the no-strike plants for this hypothesis could not be tested for Iowa.

For these samples, the low number of observations for plant closure communications is probably unrealistic. As a routine part of negotiations employer representatives claim that union bargaining demands will "put them out of business." Threats of plant closure are generally more commonplace than was found in this study. This would be especially so during the study period when many manufacturing plants were truly in financial trouble. It is likely that respondents provided socially desirable responses for this variable, perhaps to mask the severity of their competitive positions in the product market. It is also possible that respondents interpreted the questionnaire items regarding plant closure communications to be genuine threats of plant closure rather than the usual idle threats employed as a negotiations tactic.

Labor Intensity

The degree of labor intensity is well known for its association with wages. Firms which are relatively labor intensive tend to pay lower wages perhaps because their costs are already high. The relationship between labor intensity and non-financial bargaining outcomes had been tested but once with less than convincing results; however, because a different measure of the dependent variable was employed in this study, labor intensity was included as a predictor. Moreover, total bargaining outcomes include a wide array of bargaining items which are genuine monetary issues. Thus, a sound basis existed for including labor intensity. The expectation was that a negative relationship existed between labor intensity, measured at the expiration of the current contract and a percentage change in bargaining outcomes. This hypothesis was rejected for all of the data.

The lack of a relationship between labor intensity and bargaining outcomes in this study may be the result of inappropriate measurement. Because of data restrictions by respondents, only _level_ of labor intensity could be assessed in its association with _changes_ in bargaining outcomes. Clearly, _changes_ in labor intensity, which reflect changes in the employer's "ability to pay," represent a better predictor of changes in bargaining outcomes.

Future research should measure changes in labor intensity. Continuation of this project into the next round of negotiations by respondents would make this possible. Future research should also include a component analysis of total bargaining outcomes to see whether labor intensity is related to wages alone, as suggested by the literature.

Summary

In assessing the validity of the linkages specified in the model partial _support was provided for:_ (1) the impact of strike duration on bargaining outcomes in Iowa, (2) the greater impact of strikes on the relationship between changes in union strength and changes in bargaining outcomes in Virginia, (3) the impact of changes in bargaining unit employment on bargaining outcomes for the Iowa plants in the no-strike condition, (4) the greater impact of strikes on the relationship between changes in bargaining unit employment and changes in bargaining outcomes, and (5) the impact of plant closure communications on changes in bargaining outcomes for strike plants in Virginia.

Supplementary analysis was undertaken comparing the superiority of union strength and union membership per se, as predictors of changes in

bargaining outcomes.   Union membership exhibited a positive, statistically significant relationship with changes in bargaining outcomes in the Iowa no-strike condition only.   Union strength was superior in three of the four comparison tests.

A significant inverse relationship was found between changes in union strength and changes in bargaining outcomes for Virginia strike plants.   Similarly, an inverse relationship was revealed between changes in bargaining unit employment and bargaining outcomes in Virginia strike plants.   Undoubtedly, changes in bargaining unit employment were felt to some extent through the union strength variable as bargining unit employment is part of the formulation for union strength.

One issue was quite obvious from the research results.   Strikes played a special, disruptive role in labor-management relations.   Four of the five hypotheses which were upheld involved strikes.   Furthermore, in the two cases in which hypothesized relations were significant but opposite than anticipated, strike plants again were involved.   Strikes appear to remain a salient form of union power in the perception of union leaders even though strikes may not always result in favorable outcomes for local union members.

Several limitations of this study probably led to the rejection of several operational hypotheses.   First, sample size may have been prohibitive in the emergence of statistically significant relationships in this study.   The data, if combined, could ordinarily have helped relieve undesirable sample size effects.   Regrettably, major differences between states along institutional lines as well as the prevalence of concession bargaining in Iowa prevented thier combination.

Moreover, the lack of randomly selected survey participants restricted the ability of one to generalize from the relaionships which were significantly different from zero. It is hoped that many of these limitations and the ones mentioned earlier in the chapter may be properly addressed in future research efforts along these lines.

Recommendations for Future Research

A logical starting point is a strategy for future research efforts to overcome some or all of the limitations of the present study. Whereas the conclusions for this study should be regarded cautiously, it does represent an important "first step" in research designed to assess the impact of contemporary issues on changes in bargaining outcomes at the plant level. As "pattern bargaining" continues to breakdown, plant level bargaining will become more of an issue to practitioners and researchers alike.

One issue raised several times during the discussion of research results is the potential impact of earlier changes in bargaining outcomes. For example, one should control for the effect of past contract outcomes on current outcomes. Whereas profitability ratios would be preferable, union gains or losses evidenced in previous changes in bargaining outcomes would serve as an excellent proxie for the employer's "ability (and willingness) to pay. Time series analysis should be employed in future research to assess the impact of the most recent changes in bargaining outcomes on future bargaining outcomes.

Interrelations of the independent variables should be considered in modeling complex bargaining behavior. Moreover, many variables which are

naturally occurring phenomena in labor-management relations can be included to more adequately model reality. Indeed, future research may benefit from including those which were eliminated in this study. These variables were eliminated because of the difficulty in securing reliable data, not because they lacked merit. Improvements in research design may allow one to collect data on union negotiator experience, financial ratios, changes in labor intensity, and detailed strike and layoff data. Other variables not originally considered may prove fruitful as well. For example, changes in plant level, bargaining unit productivity and attendance behavior have a logical connection with the employer's "ability (and willingness) to pay."

As noted above, improvement in research design is necessary to expand the number of explanatory variables and to give one greater confidence in reported data. "Triangulation" should be employed as a strategy to improve one's confidence in questionnaire or interview responses. Triangulation is a nautical term used in navigation in which several different reference points are used in charting a course to improve confidence in one's chosen route (i.e., use of landmarks and charting a course by the stars).

Triangulation in labor-management relations research could significantly improve data reliability. The questionnaire item on plant closing communications serves as a good example. It was believed by the researcher that in many cases, personnel directors failed to reveal their use of plant closing threats in negotiations. Triangulation would involve using different methods to ask the same question (i.e., mail questionnaire

plus personal interviews with same respondent) and different sources of data (i.e., the respondent plus the local union president).

Although pilot study participants were helpful and seemed candid during interviews, they may also have provided socially desirable responses. A triangulation strategy may point out that questionnaire items were still somewhat ambiguous and use of different methods and sources would help point this out. For example, personnel directors who responded to the mail questionnaire may have interpreted the item on plant closing communications to mean only the communication of a _serious_ threat. When the meaning of items is not the same for all respondents, random error is introduced and one's ability to explain variation in bargaining outcomes is reduced.

The use of different methods of data collection is somewhat easier to achieve than the use of multiple sources, however. In labor-management relations where adversarial relations are commonplace, different sources may distort reality because of emotional commitment to ideology. Where the quality of labor-management relations is low for a plant, the international union representative may prove to be a more objective source than the local union official.

One additional reason that stronger associations were not found in the hypothesized relationships has to do with the fact that little variation in bargaining outcomes was explained. Very little change occurred in bargaining outcomes between contracts, a reasonable expectation during periods of economic downturn. The ultimate goal of research is to explain as much variation in one's dependent variables as possible. A restriction

in the range of observations as occurred in this study limits one's ability to meet that objective.

One very positive feature of this study was the use of Kochan and Block's index of collective bargaining items. Undoubtedly the greatest criteria of success for management and union negotiators is the net change achieved in collective negotiations. That net change includes all possible outcomes through collective negotiations (wages plus all other issues). In the past, however, both sides have emphasized wage changes as the ultimate criteria. During a period of prolonged concession bargaining in which unions are losing wage and other monetary advantages gained through earlier negotiations, unions will be forced to demonstrate the tradeoffs they were able to gain.

The index of bargaining items not only allows one to include a much wider range of items than wages, but also provides a relative weighting scheme so that all items may be considered and negotiations thought of as a "package." Moreover, a history may be developed of changes in each contract item over the labor-management relationship. This history may be used for a number of things of interest to both labor and management.

For both labor and management, the history of negotiations represents a "track record" of performance by negotiators. Negotiator strengths and weaknesses may surface by examining the outcomes they achieved in light of existing union-plant conditions surrounding negotiations. An examination of the track record may point to organizationally specific training needs. It may also be used as a performance evaluation tool for labor relations specialists.

Newly elected local union officials may find it particularly useful to gauge local union member tastes over past contract episodes. In essence, it provides continuity for union leadership over successive elections in which competing candidates might not be expected to share information followng an election even if it were in the best interest of the membership. It may be useful for new labor relations specialists, especially in situations in which there has been considerable turnover in the industrial relations area.

Although the coding index is relatively broad in its coverage of contract items, there is a need to expand the number of items. The current index does not include a comprehensive coverage of items such as various forms of insurance. For example, insurance issues such as whether the employee pays part of the insurance premium are not included. Does the employee pay a deductible for major medical insurance? Does the employer pay all of the pension contribution, or is this assessment shared. Is the pension covered under a joint union-employer trust fund or a private carrier controlled by the employer? An item each does cover pensions and insurance; however, like many of the items in the index these are treated as a "present-absent" dichotomy.

The addition of actual wages to the index by the researcher was also warranted. This is the first study which has truly measured total bargaining outcomes as a unitary concept. In previous studies, wages have been evaluated separately from other bargaining outcomes. Although including the changes in average wages would have been preferable, changes in low wages and in high wages still provided valuable information.

Although the coding index represents an important contribution to this field, there are a number of issues of measurement which should be addressed to improve this document.

First, although the range of applicable scores for each item is between zero and 10, not all items are treated as continuous variables. Whereas many make discernible, "equal appearing" gradations for the degree to which an item is present in the index (see Appendix K), others are scored as dichotomous - either present or absent. If present in the contract, the item is given a 10. If absent, the item is given a zero. This mixed scaling technique is inappropriate and should be revised to reflect finer discriminations _within_ items.

Second, the issue of how one determines the values for each item is critical. Earlier research found weighted and unweighted scaling techniques to yield virtually identical results. However, these studies are dated and may not reflect the current tastes of union members, especially during the era of recent economic disparity.

Focused group interviews could be conducted for union members and negotiators to ascertain whether (1) rank-and-file tastes and preferences have changed for various bargaining outcomes, and (2) the extent to which there is agreement between the rank-and-file and their union leaders on negotiations issues. While union members ultimately vote to ratify or reject a contract, the union officials and negotiating committee represent the rank-and-file interests in negotiations.

Third, once item weighting is accomplished, item analysis should be undertaken. In this technique, contract items which exhibit little or no variance are eliminated from statistical analysis. This has the effect

of improving internal consistency reliability as well. Each item which does not correlate well (i.e., r = .30) with the total bargaining outcome score is eliminated because it shows a weak association with the concept to which it supposedly belongs.

One promising area regarding changes in bargaining outcomes involves the dimensionality of Kochan and Block's bargaining outcomes scale. The totality of outcomes are comprised of 5 subscales which offer greater hope to explain bargaining dynamics. Clearly, identifiying where give backs or gains have occurred is fruitful. This issue alone is of tremendous practical value to practitioners hoping to identify legitimate trends in their industry or local labor market. There is room for caution in its use, however.

Perhaps because the bulk of those persons using the index have been economists, the measurement properties of the index have not received adequate attention. Use of the scale with 128 items does not present formidable problems for reliability; however, breaking the larger scale into the five components as did Kochan and Block, may present reliability problems. The five subscales are fairly evenly divided among the 128 items, with none exceeding 30. Since reliability tends to be sensitive to the number of items per scale, future researchers should estimate internal consistency reliability for each subscale, eliminating from analysis subscales which exhibit unsatisfactory reliability.

Whereas the coding index is content valid, the construct validity of the subscales has not been established. Researchers have grouped items together by convention and have not attempted to use statistical clustering techniques such as factor analysis to confirm their groupings.

These issues are important for purposes of internal validity. If it is claimed, for example, that the subscale entitled "Wage Supplements" is systematically related to one or more predictors, the researcher must be reasonably certain that Wage Supplements truly represents what s/he says it represents. Unless one's results are internally valid, the issue of exteral validity cannot be addressed, i. e. , one cannot generalize results to other populations or settings.

Validity has practical implications, as well. Even if results of research are consistent over time or across settings, organizational decisions may be based on fallacious assumptons. Decisions of this nature can be costly for organizations, whether they are uinon organizations or the employer.

One feature of the current project which is enlightening is that right-to-work states may be quite different as regards labor-management relations practices. A larger question is whether there are regional differences in this area. Employers making relocation decisions or new plant cite decisions may want to know. Since this may also reflect "consumer" tastes, union organizers may also want to know regional differences in bargaining outcomes. The examination of companion open shop states within regions may help one understand whether differences noted in the current data are consistent with realilty.

One final point will be made. Past research has been conducted along very traditional lines. Despite the fact that economists recognize the dangers of disaggregating data to make generalizations to all levels of labor-management relations, they continue. Studies which explore the determinants of collective bargaining outcomes strike at the most funda-

mental issues in labor-management relations. With the advent of multi-disciplinary research in labor and industrial relations and the increase of institutional support for applied research, there are fertile grounds for multi-level studies which consider endogenous and exogenous causes for systematic changes in collective bargaining agreements. There is no reason why individual, group, plant, establishment, and industry level observations cannot be part of the same comprehensive model. Indeed, it should be the ulimate objective.

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APPENDIX A

Unemployment in the Local Labor Market

Unemployment data were provided by officials from both Virginia and Iowa. The Virginia Employment Commission provided data compiled by the U. S. Department of Labor, Bureau of Labor Statistics in a tabulated report entitled Historical Report on Labor Force and Unemployment. This report includes information by county SMSA, and selected cities and was provided for years 1979-85.

The Iowa Department of Job Service provided data compiled by their Research and Analysis Department in a tabulated report entitled CPS Labor Force Summary - Iowa. It included data on labor force, employment and unemployment and was provided for years 1979-85.

For each state, the unemployment rate was expressed as the percentage of unemployed persons by location. Since unemployment figures were available for some cities in Virginia and none in Iowa, a strategy of consistency was employed. When an employer in either state was located within an SMSA, the unemployment rate for the SMSA was used. Since county data were available for both states, the county unemployment rate was used for all other employers not located within an SMSA.

It should be noted that unemployment data were probably not computed identically for each state. Nor, for that matter, should they be expected to reflect "true" unemployment. Data for both documents were provided by the employment commissions of both states. It might be that commission budgets are tied to the rate of unemployment, in which case the "reported" rates may be somewhat inflated.

Accuracy notwithstanding, employers and unions react to information which is reported. That is, they tend to behave as if the reported unemployment rates are accurate. Moreover, these unemployment rates are the best available data to reflect unemployment in a local labor market.

APPENDIX B

BARGAINING OUTCOMES QUESTIONNAIRE
(DRAFT)

The questions on the following pages are related to changes in bargaining
outcomes from the contracts that you have provided us. Please answer each
question from information available from your personnel records in every
possible case. It would be helpful if you could indicate whether you relied
upon your memory or on actual records in answering each of the questions.
Please write a capital "R" for records or a capital "M" for memory after each
answer. Thank you.

It will facilitate answering most of the questions if you can recall three (3)
important dates: (1) the date corresponding to the beginning of your previous
collective bargaining contract, (2) the date corresponding to the end of your
previous contract, and (3) the date that a verbal agreement was struck for your
current contract between management and the local union. After the first page
of the questionnaire, these three dates will be identified as T_1, T_2, and T_3,
respectively.

Please remember to write these dates in the spaces below so that they will
serve as a guide in answering the questions. Spaces are provided at the top
of each page for you to write these three dates, as you will need to refer to
them frequently.

Beginning of Previous   End of Previous   Verbal Agreement for
Contract   Contract   Current Contract

_____   _____   _____
        T_1 T_2 T_3

PART I: The following questions relate to the local union's strength from one
contract period to the next.

Personnel Director's Notes
_____

1. How many employees were members of the local union
at the beginning of the previous contract (T_1)? _____

2. How many employees were eligible to be members of the
local union at the beginning of the previous contract (T_1)?

_____

3. On the day that the current contract was verbally
agreed to (T_3) by management and the local union, how many
employees were members of the local union? _____

4. On the day that the current contract was verbally agreed
to (T_3), how many employees were eligible to be union
members? _____

5. Did a strike occur at the end of your previous
contract (T_2)?

     yes _____   no _____

Beginning of Previous Contract	End of Previous Contract	Verbal Agreement for Current Contract
T_1	T_2	T_3

Personnel Director's Notes

6. If you answered "yes" to question 5, how many employees were members of the local union on the date that the strike began?

_____

7. If you answered question 6, how many employees were eligible to join the local union on that date? _____

PART II: The following questions relate to the local union's militancy from one contract period to the next. You will find the three dates you have listed at the top of the page to be helpful again.

8. How many strikes occurred from T_1 to T_3? _____

9. How many days did each strike last? Please list the number of days for each strike below to include the dates each began and ended. For example, if the first strike began on January 3, 1981 and ended on January 8, 1981, this would be a total of 6 full days.

Strike #1: began _____ ended _____ total _____

Strike #2: began _____ ended _____ total _____

10. For each strike that occurred, please list the percentage of your total workforce that reported for work on the first day of the strike and on the last day of the strike.

Strike #1: _____% on first day _____% on last day

Strike #2: _____% on first day _____% on last day

NOTE: If there were more than 2 strikes during this period, please make a note of this on the back of the last page, providing the same information that was asked for in #10 and #11, above.

11. What is the date on which the local union was certified by the National Labor Relations Board? _____

12. How many strikes have occurred since the local union was certified? _____

Beginning of Previous Contract	End of Previous Contract	Verbal Agreement for Current Contract
T_1	T_2	T_3

Personnel Director's Notes

PART III: The following questions relate to the economic environment in which your firm exists. Again, you will find the 3 specific dates above to be helpful.

13. How many plants within your company have been permanently closed between T_1 and T_3? _____

14. We are interested in the effect that plant closings within your company has had on your plant's workload. The period of interest is from T_1 through T_3. Please indicate the percentage by which your workload changed during this period.

percentage increase _____% percentage decrease _____%

our plant's workload was unaffected _____
(check if appropriate)

15. Has your firm merged with or been acquired by another firm in the period from T_1 to T_3?

yes _____ no _____

16. If you answered "yes," what happened to the contract that was in effect in your plant prior to the merger or acquisition?

   a. we continued to use the contract that was in force before ther merger/acquisition.

   b. we renegotiated a labor contract with the local union after the merger/acquisition.

PART IV: The following questions relate to layoffs. It is important to indicate the number who were layed off because of PRODUCT DEMAND as opposed to those who were layed off because of CHANGES IN TECHNOLOGY.

17. How many layoffs occurred in your plant during the period from T_1 to T_3? _____

18. How many employees were involved in each layoff? Please note the separate categories for classifying layoffs.

Layoff #1: product demand ____ change in technology ____
Layoff #2: product demand ____ change in technology ____

(Continued at top of page 4)

Beginning of Previous Contract	End of Previous Contract	Verbal Agreement for Current Contract
T_1	T_2	T_3

Personnel Director's Notes

Layoff #3: product demand ____ change in technology ____

(If more layoffs occurred than you have room for above, please list these on the back of the last page)

19. Please indicate the beginning and ending dates for each layoff discussed in question 18, above.

Layoff #1: date began _____ date ended _____

Layoff #2: date began _____ date ended _____

Layoff #3: date began _____ date ended _____

(Please use the back of the last page if you need to include more than 3 layoffs)

SECTION V: The following questions relate to the experience of negotiators in your bargaining relationship with the local union.

20. Please indicate the number of contracts that the chief negotiator for management actually negotiated before he/she negotiated the current contract. _____ contract/s

.21. What was the occupational title of your chief negotiator? For example, it may have been the Personnel Director, General Manager, or labor attorney, etc.

    Title: _____

22. What is the title of the person who has the final authority for management to approve contract concessions made to the local union. He or she may be a local executive or, perhaps, located at a corporate headquarters.

    Title: _____

23. Please indicate the number of contracts that the chief negotiator for the local union negotiated before he/she negotiated the current contract. _____ contract/s

24. If the cheif negotiator for the local union was a member of the local union, please indicate his/her title (i.e., local president, vice-president, treasurer, etc.)

    Title: _____

Beginning of Previous Contract	End of Previous Contract	Verbal Agreement for Current Contract
T_1	T_2	T_3

Personnel Director's Notes

25. If the chief negotiator for the local union was not a member of the local union (i.e., international union representative, business agent, or labor attorney, etc.) please indicate his/her name, title, and address, if possible.

    Name: _____

    Title: _____

  Address: _____

             _____

             _____

             _____

26. How many consecutive years had the local union president been in office at T_3? ____consecutive years

27. How many persons worked in your personnel function/department on a full-time basis during the period from T_1 to T_3? number of full-time employees _____

28. How many of these were involved in union-management relations during this period in some capacity (i.e., grievance/arbitration, collective bargaining, etc.)?

       number of full-time employees _____

SECTION VI: The following questions relate to the importance of your firm's size. "Size" refers to the total number of employees in your plant, not just production employees. Again, the 3 key dates are needed.

29. How many people were employed by your plant at T_1?

                              _____ employees

30. How many people were employed by your plant at T_2?

                              _____ employees

31. How many people were employed by your plant at T_3?

                              _____ employees

Beginning of Previous Contract	End of Previous Contract	Verbal Agreement for Current Contract
T_1	T_2	T_3

Personnel Director's Notes

SECTION VII: The following questions relate to analysis of your plant's financial viability prior to the commencement of bargaining for your current contract. Please note that we are asking only for financial ratios, NOT actual accounting figures.

32. For the year preceeding T_2, what percentage of your total costs were your labor costs?

_____ %

33. For the year preceeding T_2, what was the ratio of your current assets to your current liabilities?

$$\frac{\text{current assets}}{\text{current liabilities}} = \text{_____} \%$$

34. For the year preceeding T_2, what was the ratio of your net income to your total assets?

$$\frac{\text{Net Income}}{\text{Total Assets}} = \text{_____} \%$$

SECTION VIII: The following questions relate to union election activity that might have occurred during our period of interest ($T_1 - T_3$). Please recall the 3 key dates in considering your answer.

35. Was there a formal attempt by a rival union to represent your employees between T_1 and T_3?

yes _____ no _____

36. If you answered "yes" in 35, above, what was the date of the petition that was submitted to the NLRB?

Petition date: _____

37. Was there a formal attempt made by employees to decertify the local union between T_1 and T_2?

yes _____ no _____

38. If you answered "yes" in 37, above, what was the date of the petition that was submitted to the NLRB?

Petition date: _____

THANK YOU FOR MAKING IT POSSIBLE FOR THIS PROJECT TO SUCCEED. Feel free to make any comments that you like!

Telephone Interview Guide
for
Collective Bargaining Study

I.   Telephone Contacts
      A.   Ask for the Personnel Director or I.R. Manager
      B.   Also   ask   what   the   person's   name   is:
            _____

      C.   If the focal person has a secretary, try to learn her name:
            _____

      D.   Is there a particular extension number? _____
      E.   Hours of plant operation. _____
      F.   If it is necessary to call back, is there a "best time" during
            the day? (i.e., before 8:00 AM, during lunch after 4:00 PM).
            _____

II.   Direct Contact with Focal Person
      A.   Identify self
            1.   doctoral student in management
            2.   Virginia Tech
      B.   Identify Purpose
            1.   writing a dissertation to complete Ph.D
            2.   conducting pilot study on a collective bargaining topic
      C.   Investment of Your Time?
            1.   May vary based upon type of operation and amount of
                  assistance you have, but will take at least several
                  hours.
            2.   Must fill out an 8-page questionnaire, but not really
                  8 pages.
            3.   Need to make notes on the questionnaire about diffi-
                  culties you encounter in answering questionnaire items.
            4.   Will involve a follow-up interview to go over the
                  questionnaire, item-by-item.
            5.   Deadline of 10 days.
            6.   HONESTY STRATEGY - It will involve an investment of
                  your time and energy but the results should be worth
                  it.

SUGGESTIONS FOR QUESTIONNAIRE PARTICIPANTS

Attached is a six-page draft questionnaire dealing with issues that we feel may be related to changes in bargaining outcomes (e.g., wages, benefits, hours, etc.) from one contract period to the next. Based upon your comments and the comments of your colleagues in Southwest Virginia, this questionnaire will be revised and will be distributed to a large number of personnel professionals in Virginia manufacturing firms.

Even though the questionnaire is six pages, its actual length is masked because approximately two-fifths of each page is partitioned for you to make comments in the margin about each question. Furthermore, not all questions apply to each plant. Thus, your involvement is not as extensive as a full six-page questionnaire would imply.

An issue of primary importance is the ordering of questions. Some of the questions may need to be grouped together to help avoid duplication of effort on your part. Please read through the questionnaire at least once and group the questions that you feel belong together to help in your particular plant. If you will make a note of this grouping, it might prove to be invaluable in designing the final questionnaire.

Your time is valuable and will play a key role in your willingness and ability to complete a questionnaire, regardless of its length. For this reason, it is essential to know the time that you have invested in this project and the number of people required to complete the questionnaire. Among your comments in the Personnel Director's Notes, please estimate the time needed to secure answers to each question and the number of people needed for each question.

The instructions for the questionnaire also ask that you indicate whether you relied primarily on personnel records or memory to answer each question. You will want to include the following in the Personnel Director's Notes beside each question:

1. Source of information (records vs. memory)

2. Approximate time required to answer each question.

3. Number of persons required to answer each question. (There will be at least one since you are involved in each question.)

4. Was special permission required for you to respond to any particular question(s)?

5. Were any of the questions ambiguous or poorly worded?

6. If a particular question <u>does not apply</u> to your plant, please indicate this by marking "n. a." (not applicable). Feel free to make any comments on any question or aspect of this study.

Your help with this project is invaluable and denotes a concern for the advancement of your profession and a concern for your employees. The information from this study will ultimately make possible an accurate assessment of many of the things that impact on bargaining outcomes and will provide industry guidelines for future bargaining relationships.

It will be necessary to conduct "exit interviews" with each questionnaire participant so that we can review your comments from the <u>Personnel Director's Notes</u> plus any other comments or suggestions that you might care to offer. It is necessary to attempt a "wrap up" by Tuesday, August 11. I will call later in the week to see if it is possible to arrange an exit interview prior to that date.

Again, your professional and personal contribution is greatly appreciated. I hope that it will be possible for me to help you in some way in the future.

> Fab O'Brien
> Doctoral Candidate in
>   Management, VPI & SU
>
> August 2, 1983

Appendix D

APPENDIX E

List of Pilot Study Participants

Mr. Charles N. Burnham
Personnel-Safety Director
P.O. Box 13206
Roanoke, VA 24032

Mr. Robert Dellapina
Director of Industrial Relations
Harvey Hubble, Inc.
2000 Electric Way
Christiansburg, VA 24073

Ms. Diane M. Eckland
Industrial Relations Assistant
Celanese Fibres Co.
P.O. Box 1000
Narrows, VA 24124

Mr. Charles R. Edmonds
Personnel Manager
Federal-Mogul, Inc.
720 Industrial Park Rd.
Blacksburg, VA 24060

Mr. Douglas R. Howell
Labor Relations and Safety Manager
Lynchburg Foundry
Radford, VA 24141

Mr. Sam Levy
Manager, Personnel and Industrial
   Relations
Volvo-White Truck Corp.
P.O. Box 1126
Dublin, VA 24084

Mr. Hiawatha Nicely
Supervisor-Personnel & Safety
Hercules, Inc.
P.O. Drawer 431
Pulaski, VA 24301

Mr. Stephen N. Riddlebarger
Personnel Manager
Dunham-Bush
101 Burgess Road
Harrisonburg, VA 22801

VIRGINIA TECH

Industrial Relations Center
Department of Management

Blacksburg, Virginia 24061
(703) 961-6353

June 7, 1985

Dear

I enjoyed the opportunity to speak with you this week regarding a research project on the impact of the "open shop" on collective bargaining in the Commonwealth of Virginia. This project is the final step in my program to complete the Ph.D. degree in Business Administration.

As promised, I have enclosed two copies of the three-page questionnaire. These can be used for the two Virginia plants that you mentioned on the telephone. The questionnaire covers several contemporary issues which employers and unions have been faced with over the past several years. Of particular importance is the effect of union membership on collective bargaining. A self-addressed, stamped envelope is included for return of the questionnaire.

If you have not yet had an opportunity, please send a copy of your current collective bargaining contract and a copy of the contract just prior to the current contract. Once I receive the contracts, I can begin the job of assigning values to each item in both contracts. In this way, changes from one contract to the next can be determined.

I am very grateful for your professional consideration. I believe that this will prove to be an interesting study, and we will gladly share the results of the final report with you. Please rest assured that all information that you share with me will be held in strictest confidence. The number affixed to the upper right-hand corner of the questionnaire identifies your firm. I am the only person who will know the source of the data.

Again, thanks. If you have any questions regarding the questionnaire or any aspect of the project, please feel free to contact me (or Dr. John J. Hoover) at the number on the back of the questionnaire.

                                     Sincerely yours,

                                     Fab O'Brien
                                     Doctoral Candidate in
                                       Business Administration

al

Encl:

<center>APPENDIX F</center>

WESTERN ILLINOIS UNIVERSITY

MACOMB, ILLINOIS 61455

<div align="right">

COLLEGE OF BUSINESS

CENTER FOR BUSINESS AND ECONOMIC RESEARCH

</div>

<center>July 24, 1985</center>

Dear

    I enjoyed speaking with you recently regarding a research project on the impact of the "open shop" on collective bargaining in Iowa. This project is being conducted in the Commonwealth of Virginia, as well.

    As promised, I have enclosed a copy of the three-page questionnaire that we spoke of on the telephone. The questionnaire covers several contemporary issues which employers and unions have been faced with over the past several years. Of particular importance is the effect of union membership on collective bargaining. A self-addressed, stamped envelope is included for return of the questionnaire.

    If you elect to participate, please send a copy of your current collective bargaining contract and a copy of the contract just prior to the current contract. Once I receive the contracts, I can begin the job of assigning values to each item in both contracts. In this way, changes from one contract to the next can be determined.

    I am very grateful for your professional consideration. I believe that this will prove to be an interesting study, and we will gladly share the results of the final report with you. Please rest assured that all information that you share with me will be held in strictest confidence. The number affixed to the upper right-hand corner of the questionnaire identifies your firm. I am the only person who will know the source of the data. Neither you, the union, nor your firm will be singled out in any way.

    Again, thanks. If you have any questions regarding the questionnaire or any aspect of the project, please feel free to contact me at one of the numbers on the back of the questionnaire.

<div align="center">

Sincerely yours,

Fabius P. O'Brien
Assistant Professor of
  Management

</div>

FPO/bjr

APPENDIX G

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

COLLECTIVE BARGAINING QUESTIONNAIRE

The questions on the following pages are related to changes in bargaining outcomes from the contracts that you have provided us. Please answer each question from information available from your personnel records in every possible case.

PART I: The following questions relate to the local union membership from one contract period to the next. It will facilitate answering these questions if you can recall three important dates: (1) the date corresponding to the *beginning* of your *previous* collective bargaining contract, (2) the date corresponding to the *end* of your *previous* collective bargaining contract, and (3) the date on which the local union members ratified the *current* contract.

Please write these dates in the spaces below so that they will serve as a guide in answering the questions. Spaces are provided at the top of *each* page for you to write these three dates, if you think that it will help.

Beginning of Previous Contract	End of Previous Contract	Ratification Date for Current Contract
_____	_____	_____
	(includes the end of any contract extensions)	

Please refer to your checkoff files to answer questions in this section.

1. How many employees were members of the local union at the *beginning* of the *previous* contract?   _____

2. How many employees were members of the bargaining unit at the *beginning* of the *previous* collective bargaining contract?   _____

3. On the day that the *current* collective bargaining contract was *ratified* by the local union, how many employees were members of the local union?   _____

4. On the day that the *current* collective bargaining contract was *ratified* how many employees were members of the bargaining unit?   _____

Please continue on the back of this page . . . . .

COLLECTIVE BARGAINING QUESTIONNAIRE

The questions on the following pages are related to changes in bargaining outcomes from the contracts that you have provided us. Please answer each question from information available from your personnel records in every possible case.

PART I: The following questions relate to the local union membership from one contract period to the next. It will facilitate answering these questions if you can recall three important dates: (1) the date corresponding to the *beginning* of your *previous* collective bargaining contract, (2) the date corresponding to the *end* of your *previous* collective bargaining contract, and (3) the date on which the local union members ratified the *current* contract.

Please write these dates in the spaces below so that they will serve as a guide in answering the questions. Spaces are provided at the top of *each* page for you to write these three dates, if you think that it will help.

Beginning of Previous Contract	End of Previous Contract	Ratification Date for Current Contract
_____	_____	_____
	(includes the end of any contract extension)	

Please refer to your checkoff files to answer questions in this section.

1. How many employees were members of the local union at the *beginning* of the *previous* contract? _____

2. How many employees were members of the bargaining unit at the *beginning* of the *previous* collective bargaining contract? _____

3. On the day that the *current* collective bargaining contract was *ratified* by the local union, how many employees were members of the local union? _____

4. On the day the *current* collective bargaining contract was *ratified* how many employees were members of the bargaining unit? _____

Beginning of Previous Contract	End of Previous Contract	Ratification Date for Current Contract
_____	_____	_____
	(includes the end of any contract extensions)	

5. Did a strike occur at the *end* of your *previous* collective bargaining contract?

    Yes ☐   No ☐

6. If a strike occurred at the *end* of your *previous* collective bargaining contract, how many days did it last? Please include the dates the strike *began* and *ended*. For example, if the strike *began* on January 3, 1981 and *ended* on January 8, 1981, this would be total of 6 *full* days.

    NOTE: Wildcat strikes should not be included.

    Date   Date   Total
    strike began _____   strike ended _____   strike days _____

7. If you answered "yes," in 5, above, how many employees were members of the *local union* on the date that the strike began?   _____

8. If you answered "yes," in 5, above, how many employees were members of the *bargaining unit* on the date that the strike began?   _____

9. What is the *total* number of *all current* employees in your plant?   _____

10. What is the approximate date of the *first* contract between your plant and the *current local union?*   _____

PART II: The following questions relate to union election activity that might have occurred during our period of interest. Please recall the 3 key dates in considering your answers.

11. Did the bargaining unit members file a petition for decertification between the date the *previous* contract *began* and the date that the *current* contract was *ratified*?

    Yes ☐   No ☐

12. If you answered "yes," in 11, above, what was the date the petition was filed with the NLRB?   petition date _____

13. If you answered "yes," in 11, above, did the petition that was submitted to the NLRB actually result in a decertification election?   Yes ☐   No ☐

14. Was there activity among the bargaining unit members to push for a decertification election which *did not* result in the filing of a petition?   Yes ☐   No ☐

15. If you answered "yes," in 13 or 14, above, please write in *beside your answer* the approximate dates which covered these types of decertification activities.

Please continue at the top of the next page . . .

Beginnning of Previous Contract	End of Previous Contract	Ratification Date for Current Contract
_____	_____	_____
	(includes the end of any contract extensions)	

PART III: This section relates to the employment security for your plant.

16. During the period from the *beginning* of your *previous* contract to the date the *current* contract was *ratified*, were your employees informed that it might be necessary to:

        a.   Reduce employment in the bargaining unit?   Yes ☐ No ☐

        b.   Close your plant?   Yes ☐ No ☐

17. If a *strike* occurred in your plant between the date of your *previous* contract *ended* and the *current* contract was *ratified*, were your employees informed (for the first time) *during that period* that it might be necessary to:

        a.   Reduce employment in the bargaining unit?   Yes ☐ No ☐.

        b.   Close your plant?   Yes ☐ No ☐

PART IV: The following question relates to the degree to which your plant is *labor* versus *capital* intensive.

This particular question is perhaps the most important one and is *essential* to this study. This information will be held in *strictest confidence*. Please note also, that only *ratios* are sought, not actual cost data.

---

18. On the date that your *previous* contract *expired* (including any extension), what *percentage* of your *total costs* were your *labor costs?*

    NOTE: Compute using this formula: $\dfrac{\text{labor costs}}{\text{total costs}}$ = _____ percent

●●

Your participation has made it possible for this project to succeed. We are deeply grateful for your professional contribution. Please feel free to make comments about any portion of this questionnaire *on the back* of this page. It may prove to be a particularly valuable contribution. Again, thanks, and *we will be sharing the results with you soon.*

SEE REVERSE SIDE

A LAND-GRANT UNIVERSITY

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

Department of Management
(703) 961-6353

December 10, 1985

Dear

We spoke this summer about a research project, which I am
conducting for my doctorate at Virginia Tech. The study
involved the impact of the "open shop" and other
contemporary issues on collective bargaining. Your firm
elected not to participate in the study after seeing the
questionnaire.

As a final step in data analysis, it is necessary to
compare firms that chose not to participate with those
who did participate. I would be most appreciative if you
would take but a moment to answer the five short
questions on the attached postcard. ESTIMATES will be
perfectly acceptable.

Please place the postcard in your outgoing mail. The red
number on your postcard is written so that I am the only
one who can identify the source of data. The address on
the postcard reflects my new employment in Peoria,
Illinois.

Even though you did not participate in the study, per se,
I shall gladly share the results of my work with you in
exchange for this postcard information.   The results
might prove useful in your next round of negotiations.

Thanks for your help. I wish you a very happy holiday
season!

Sincerely yours,

Fab O'Brien
Doctoral Candidate in
  Business Administration

enclosure

1. How many people <u>currently</u> work for your plant? This
   includes <u>everyone</u>, not just the bargaining unit.

                                                    _15_

2. In approximately what year was the <u>first</u> contract
   signed between your plant and the <u>current</u> local union?

                                                    _1970_

3. Approximate <u>ratification date</u> for <u>current</u> contract.

                                        mAY 1986

4. Approximate date for <u>end</u> of <u>previous</u> contract.

                                        JuNE 1986

5. Approximate date for <u>beginning</u> of <u>previous</u> contract.

                                        JuNE 1983

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APPENDIX I

CONTRACT PROVISIONS

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041 Absenteeism (135)
042 Moonlighting (136)
043 Weekly work days (143)
044 Weekly work hours (144)
045 Daily overtime hours (147)
046 Daily overtime rate (149)
047 Weekly overtime hours (153)

102   Job evaluation (250)
103   Production standards (251)
104   Time and Motion Study (251)
105   Safe equipment provisions (257)
106   Environmental impact (258)
107   Safety committee (260)
108   Employee safety provisions (264)
109   Limited subcontracting (265)
110   Slack period division of work (266)
111   Notice of layoff (267)
112   Shut-down notice (268)
113   Technical change notice (269)
114   Overtime regulations in slack periods (270)
115   Interplant transfer (271)
116   Relocation allowance (272)
117   Supplementary unemployment benefits (SUB'S) (279)
118   Severance pay (280)
119   Military pay (192)
120   Right to refuse overtime (165)
121   Temporary Transfer (285)
122   Pensions (286)**
123   Health Insurance (287)**
124   Dental and Optical Insurance (288)**
125   Industrial Injury (289)**
126   Regular Layoff and Call-Back (290)**
127   Base Wage (291)**
128   Highest Wage (292)**

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* Page location in revised coding manual for each item
**New contract provisions

Part I: Code Sheet for Collective Bargaining Contracts

1. _____Virginia = 1
          Iowa   = 2

2. _____Contract Number = (three digits between 001-400)

3. Following are the scores for each paid of contracts.
    Column one represents the scores for the PREVIOUS CON-
    TRACT. Column two represents the scores for the CURRENT
    CONTRACT. There are 128 items.

Q1(a) _____	Q1(b) _____	Q65(a) _____	Q65(b) _____
Q2(a) _____	Q2(b) _____	Q66(a) _____	Q66(b) _____
Q3(a) _____	Q3(b) _____	Q67(a) _____	Q67(b) _____
Q4(a) _____	Q4(b) _____	Q68(a) _____	Q68(b) _____
Q5(a) _____	Q5(b) _____	Q69(a) _____	Q69(b) _____
Q6(a) _____	Q6(b) _____	Q70(a) _____	Q70(b) _____
Q7(a) _____	Q7(b) _____	Q71(a) _____	Q71(b) _____
Q8(a) _____	Q8(b) _____	Q72(a) _____	Q72(b) _____
Q9(a) _____	Q9(b) _____	Q73(a) _____	Q73(b) _____
Q10(a) _____	Q10(b) _____	Q74(a) _____	Q74(b) _____
Q11(a) _____	Q11(b) _____	Q75(a) _____	Q75(b) _____
Q12(a) _____	Q12(b) _____	Q76(a) _____	Q76(b) _____
Q13(a) _____	Q13(b) _____	Q77(a) _____	Q77(b) _____
Q14(a) _____	Q14(b) _____	Q78(a) _____	Q78(b) _____
Q15(a) _____	Q15(b) _____	Q79(a) _____	Q79(b) _____
Q16(a) _____	Q16(b) _____	Q80(a) _____	Q80(b) _____
Q17(a) _____	Q17(b) _____	Q81(a) _____	Q81(b) _____
Q18(a) _____	Q18(b) _____	Q82(a) _____	Q82(b) _____
Q19(a) _____	Q19(b) _____	Q83(a) _____	Q83(b) _____
Q20(a) _____	Q20(b) _____	Q84(a) _____	Q84(b) _____
Q21(a) _____	Q21(b) _____	Q85(a) _____	Q85(b) _____
Q22(a) _____	Q22(b) _____	Q86(a) _____	Q86(b) _____
Q23(a) _____	Q23(b) _____	Q87(a) _____	Q87(b) _____
Q24(a) _____	Q24(b) _____	Q88(a) _____	Q88(b) _____
Q25(a) _____	Q25(b) _____	Q89(a) _____	Q89(b) _____
Q26(a) _____	Q26(b) _____	Q90(a) _____	Q90(b) _____
Q27(a) _____	Q27(b) _____	Q91(a) _____	Q91(b) _____
Q28(a) _____	Q28(b) _____	Q92(a) _____	Q92(b) _____
Q29(a) _____	Q29(b) _____	Q93(a) _____	Q93(b) _____
Q30(a) _____	Q30(b) _____	Q94(a) _____	Q94(b) _____
Q31(a) _____	Q31(b) _____	Q95(a) _____	Q95(b) _____
Q32(a) _____	Q32(b) _____	Q96(a) _____	Q96(b) _____
Q33(a) _____	Q33(b) _____	Q97(a) _____	Q97(b) _____
Q34(a) _____	Q34(b) _____	Q98(a) _____	Q98(b) _____
Q35(a) _____	Q35(b) _____	Q99(a) _____	Q99(b) _____
Q36(a) _____	Q36(b) _____	Q100(a) _____	Q100(b) _____

```
Q37(a) _____  Q37(b) _____      Q101(a) ____  Q101(b) ____
Q38(a) _____  Q38(b) _____      Q102(a) ____  Q102(b) ____
Q39(a) _____  Q39(b) _____      Q103(a) ____  Q103(b) ____
Q40(a) _____  Q40(b) _____      Q104(a) ____  Q104(b) ____
Q41(a) _____  Q41(b) _____      Q105(a) ____  Q105(b) ____
Q42(a) _____  Q42(b) _____      Q106(a) ____  Q106(b) ____
Q43(a) _____  Q43(b) _____      Q107(a) ____  Q107(b) ____
Q44(a) _____  Q44(b) _____      Q108(a) ____  Q108(b) ____
Q45(a) _____  Q45(b) _____      Q109(a) ____  Q109(b) ____
Q46(a) _____  Q46(b) _____      Q110(a) ____  Q110(b) ____
Q47(a) _____  Q47(b) _____      Q111(a) ____  Q111(b) ____
Q48(a) _____  Q48(b) _____      Q112(a) ____  Q112(b) ____
Q49(a) _____  Q49(b) _____      Q113(a) ____  Q113(b) ____
Q50(a) _____  Q50(b) _____      Q114(a) ____  Q114(b) ____
Q51(a) _____  Q51(b) _____      Q115(a) ____  Q115(b) ____
Q52(a) _____  Q52(b) _____      Q116(a) ____  Q116(b) ____
Q53(a) _____  Q53(b) _____      Q117(a) ____  Q117(b) ____
Q54(a) _____  Q54(b) _____      Q118(a) ____  Q118(b) ____
Q55(a) _____  Q55(b) _____      Q119(a) ____  Q119(b) ____
Q56(a) _____  Q56(b) _____      Q120(a) ____  Q120(b) ____
Q57(a) _____  Q57(b) _____      Q121(a) ____  Q121(b) ____
Q58(a) _____  Q58(b) _____      Q122(a) ____  Q122(b) ____
Q59(a) _____  Q59(b) _____      Q123(a) ____  Q123(b) ____
Q60(a) _____  Q60(b) _____      Q124(a) ____  Q124(b) ____
Q61(a) _____  Q61(b) _____      Q125(a) ____  Q125(b) ____
Q62(a) _____  Q62(b) _____      Q126(a) ____  Q126(b) ____
Q63(a) _____  Q63(b) _____      Q127(a) ____  Q127(b) ____
Q64(a) _____  Q64(b) _____      Q128(a) ____  Q128(b) ____
```

Part II: Code Sheet for Questionnaire Items

```
1. _____       7. _____       13. _____
2. _____       8. _____       14. _____
3. _____       9. _____       15. _____
4. _____      10. _____       16. _____
5. _____      11. _____       17. _____
6. _____      12. _____       18. _____
```

APPENDIX K

PREMIUM FOR 6TH DAY

<u>CODE</u>

0	000	- No provision
5	001	- Provision exists
0	100	- Straight time
	112	- Time and a quarter
2.5	115	- Time and a half
	117	- Time and three-quarters
	120	- Double time
	122	- Double time and a quarter
5		
	125	- Double time and a half
	127	- Double time and three-quarters
	130	- Triple time
	132	- Triple time and a quarter
7.5		
	135	- Triple time and a half
	137	- Triple time and three-quarters
10	140	- Quadruple time or more (rate specified)
	144	- Time and a quarter higher premium is applicable (found frequently in utility agreements).
	155	- Time and a half for the first or first two days beyond 5 worked, double time for the second or third and subsequent <u>consecutive</u> days beyond 5.
	166	- Time and a half in some instances double in others.
5		
	177	- Cents per hour or flat sum addition
	188	- Premium varies according to specified criteria
	195	- Premium increases with hours worked
	196	- Subject to local negotiation
5		
	199	- Other (form)

[Do not code for exceptions and specific groups]

Index of Labor Organizations by Official Name, Short Name, & Abbreviation

Official Name	Short Name	Abbreviation
Aluminum, Brick and Glass Workers International Union	Aluminum, Brick & Glass Workers	ABGW
Automobile, Aerospace and Agricultural Implement Workers of America	Auto Workers	UAW
Bakery, Confectionery and Tobacco Workers, International Union	Bakery, Confectionery and Tobacco Workers	BCTW
Boiler Makers, Iron Ship Builders, Blacksmiths, Forgers and Helpers, International Brotherhood of	Boiler Makers	BBF
Carpenters and Joiners of America, United Brotherhood of	Carpenters	CJA
Chemical Workers Union, International	Chemical Workers	ICW
Clothing and Textile Workers Union, Amalgamated	Clothing and Textile Workers	ACTWU
Electrical Workers, International Brotherhood of	Electrical Workers	IBEW
Food and Commerical Workers International Union, United	Food and Commercial Workers	UFCW
Garment Workers of America, United	Garment Workers	UCW
Grain Millers, American Federation of	Grain Millers	AFGM
Graphic Communications International Union	Graphic Communications Workers	GCIU
Laborers' International Union of North America	Laborers	LIUNA

Machinists and Aerospace Workers, International Association of	Machinists	IAM
Molders and Allied Workers Unions, AFL-CIO, International	Molders and Allied Workers	IMAW
Oil, Chemical and Atomic Workers International Union	Oil, Chemical and Atomic Workers	OCAW
Paper Workers International Union, United	Paper Workers	UPIU
Retail, Wholesale and Department Store Union	Same	RWDSU
Rubber, Cork, Linoleum and Plastic Workers of America, United	Rubber Workers	URW
Seafarers International Union of North America	Seafarers	SIU
Steelworkers of America, United	Steelworkers	USA
Teamsters, Chauffeurs, Warehousemen and Helpers of America, International Brotherhood of	Teamsters	IBT
Tool Craftsmen, International Association of	Tool Craftsmen	IATC
Transparent Film Workers	Same	Unknown
Woodworkers of America, International	Woodworkers	IWA

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