

THE DETERMINANTS OF POLICE-SPECIFIC CONTRACT CLAUSES

RICHARD C. WILLIAMS, PH.D.

Marist College, Poughkeepsie, New York

ABSTRACT

This study investigates the environmental antecedents of a composite of twenty-eight police-specific contract clauses encompassing bargaining issues such as mandated equipment, manning, premium pay provisions, officer bill of rights, and residency rules. These specific contract clauses are viewed as central to police officers' feelings of physical and psychological security and are also seen as incursions into managerial prerogatives. The focus of this research centers on three types of environmental variables: legal, socio-economic, and internal bargaining, as independent variables. A multiple regression model is constructed and estimated for all eleven independent variables during each of seven contract data years, 1975-81. Contract data from 504 municipalities, over 25,000 population, in the United States is used at least once during the seven-year period. The dependent variable reported is the overall composite although the estimates of the individual variables and groupings produce similar results. The length of the bargaining relationship and the fear rate, a measure of crimes against persons, were the strongest environmental predictors of these particular police-specific contract clauses. Several other variables, such as existence of a state arbitration statute, legal scope of bargaining, and per capita income were not particularly strong or consistent predictors of these clauses.

This article explores the environmental conditions in which police unions operate and the relative influence of these conditions on results in bargaining as represented by the strength of certain contract clauses. Police unionism is not a brand new or even recent phenomenon in the United States, although a most dramatic increase in the number of cities that bargain occurred in the 1970s, when they doubled. By 1981, over 69 percent of American cities over 25,000 population with their own police force bargained with a police union or association; and, while by no means universal, collective bargaining agreements between municipal governments and police unions had become the norm. These police agreements have

provisions dealing with salary schedules, premium pay of all kinds, fringe benefits, seniority, grievance and arbitration procedures, the assignment of employees, and union rights.

While no one contract will ever incorporate all the possible issues contained in any scoring instrument, each particular scoring blank of the police contract scoring form employed in this research was used in at least a small number of instances [1]. Consequently, it is not just the wage scale that is important in a particular contract, but rather, the multitude of issues frequently referred to as simply "language."

THE RESEARCH PROBLEM

From a union perspective, one of the ways that the viability of a union-management relationship is measured is through the collective bargaining agreement and the variety and strength of its provisions. Many studies concentrate on the wages and/or the easily quantifiable fringe benefits found in these contracts. This is understandable due to the ease of access to data and the nature of the data. Nevertheless, there is a long tradition in industrial relations literature of measuring the significance to labor unions of penetration into managerial prerogatives. Selig Perlman was intensively concerned with the centrality of "shop rights" [2]. This early recognition of "shop rights" points to the universality of craft-specific clauses. In fact, police officers, one craft group with a clear trade identity, are particularly appropriate to examine in the context of "shop rights."

Other authors have addressed the desire of labor unions to exert control over more than the overall wage level [3-5]. Kochan was troubled by the scarcity of empirical analysis of the total range of bargaining outcomes, despite the established importance of non-wage outcomes [5, p. 324].

Nevertheless, because of the centrality of non-wage items in police negotiations, this research concentrates on "police-specific" working condition clauses—those clauses unique to police union agreements or those that stand out in the importance that is attached to them in police contract negotiations. The effects of various legal, social, and bargaining determinants on the existence and strength of these "police-specific" working condition clauses is examined in detail.

The results of this research are of potential significance to labor relations theoreticians as well as practitioners because of widespread police collective bargaining. Second, the "spillover effect" [6] tends to spread the existence of wage and contract provisions beyond the union contract into nonunion personnel policies and administrative regulations. Hence, an examination of the environmental antecedents to police-specific clauses will provide each side of a bargaining relationship with information that might help dispel some dysfunctional myths that abound in police union bargaining. In addition, this research will also help in the analysis of the impact of bargaining and arbitration statutes by separating out the effects of other environmental conditions.

THEORETICAL FRAMEWORK

The theoretical framework was derived from studies in industrial relations, economics, industrial psychology, and police administration that deal with: 1) measurement of police bargaining issues, and 2) determinants of collective bargaining agreement provisions. The determinants of police-specific collective bargaining agreement provisions were tested in the analysis.

In this article, results are reported only on a composite basis, but the specific clauses can be grouped into five areas: equipment issues, bill of rights issues, staffing issues, premium pay, and residency requirement. In general, these sub-areas and specific clauses empirically do not function much differently from the aggregate, but their significance as prime examples of police-specific issues has been historically recognized. For example, we have Donald Berney's key contribution to the understanding of such police-specific contract clauses as the relevance of the "gun" as: ". . . sort of a deadly security blanket—that represents symbolic protection against a ever-hostile world . . ." [7, p. 385]. This term, "the gun," can be expanded to mean weaponry, protective equipment, and other technical material necessary or applicable to the job of police officer. The type of hand weapon, when, where, and how it can be carried, the availability of auxiliary weaponry and personal protective equipment was well as the facilities available at the police station are therefore an extension of the police officer's psychological attachment to such symbols of coercive authority.

Philip Keinast pointed out another group of issues (dealing with civil rights of police) arising in the 1960s [8]. Margaret Levi found the working conditions of police officers are as much a matter of contention as union recognition and economic benefits, with one of the most important being the civilian review board [9]. Charles Salerno, a former Miami police officer and chief union negotiator, feels that the topic of Police Officer Bill of Rights is so basic and universal among police that it should be contained in state law [10].

Juris and Feuille studied the nature of police employee organizations, the impact of police unions on law enforcement policy formulation, and their impact on the chief's ability to manage [11]. They found significant penetration into managerial prerogatives and discussed staffing, promotions, arbitrary transfers, moonlighting and paid details. Both Kaplan [12] and Decker and Wagner [13] investigated the "one-person vs. two-persons" car controversy. As the studies imply, staffing issues often have such emotional content that they find their way into many contracts, arbitrations, and courts.

Along with demanding these procedural rights in departmental investigations in their employment, police officers began to assert personal rights, such as the right to live anywhere they pleased. An arbitration, *City of Detroit vs. Detroit Police Officers Association* [14], favored the city's contention of an operational

requirement of quick, flexible response to emergencies and the economic and social involvement of police officers within the community they serve over the union's assertion that residency rules violated a fundamental "right to freedom of travel and relocation" and placed inordinate stress on the officers and their families. It is this curious mixture of personal preference, public policy and economic considerations that makes this issue so significant on both sides of the bargaining table.

SCORING SCHEMES

Once it is determined that an issue is significant in the context of an employment relationship, it is necessary to evaluate each issue so that its relative importance is adequately represented. Most scoring schemes empirically rate clauses by attaching numerical values to a predetermined set of contract language possibilities for each issue. In a sense, this process involves "quantifying the not readily quantifiable," but it can be done if the sophistication of the scoring instrument is consistent with the contract language options.

Earlier attempts at contract clause scoring schemes by Gerhart in the public sector [15], by Kochan and Block in a private sector study [16], and finally by Kochan, Ehrenberg, Baderschneider, Jick, and Mironi, using a coding system for police and fire fighter contract [17], provided the foundation for a 130-clause police contract scoring scheme, designed by Feuille, Hendricks and Delaney [18]. It is from this latter instrument that the twenty-eight contract clauses of concern here were drawn.

DETERMINANTS OF CONTRACT PROVISIONS

Since a great deal of research has used environmental factors to empirically predict the strength of bargaining outcomes, mostly wages, that experience was helpful in constructing the environmental antecedents of police-specific contract variables. Research by Lewis [19], Honadle [20], Owen [21], Schmenner [22], Fogel and Lewin [23], Freund [24], Hall and Vanderporten [25], Kearney and Morgan [26], Weber [27], and Bloom [28] points to a number of common variables as predictors of wages in union agreements. Among these are length of bargaining relationship, ability to pay, prevailing wage (general wage level), and size of the community.

In this research, attention was directed away from economic provisions as outcomes and toward the examination of the environmental factors that have been explored as potential determinants of contract provisions. Therefore, while the bargaining outcomes, whether wages or contract language, became peripheral, the environmental antecedents were used to construct the theoretical model employed in this study.

ENVIRONMENTS

The legal environment influencing police bargaining is expressed through the existence and scope of statewide bargaining laws and compulsory arbitration. Kochan [29], Kochan and Wheeler [30], and others have used indices of the legal scope of bargaining for public employees as independent variables. These studies have found a positive correlation between the legal scope of bargaining and the breadth of topics in the contracts. Although the results have varied [17, 28, 31], almost all the research points toward a positive impact of availability of arbitration on wage rates. Research involving working condition clauses by Feuille, Hendricks and Delaney [18], Feuille, Delaney and Hendricks [32], and Feuille and Delaney [33] has shown the arbitration variable to be powerful enough to include in the analysis.

Per capita income was used as an indicator of community socioeconomic status rather than as an ability-to-pay variable because of the emphasis on working conditions. The early descriptive studies of Keinast [8], Berney [7], Feuille [34] alluded to reasons other than economic for police officers to unite. A hostile and dangerous work environment was a reason quoted by many police for demands for greater compensation, more sophisticated weaponry, and more extensive procedural protections for the individual officer. The primary variable affecting this perceived dangerous environment is the crime rate, particularly the crimes of violence against persons. The final socioeconomic variable, race, expressed as the percentage minority population of the municipality, was selected because of many police officers' concern for the potential for racial conflict.

The final group of four environmental factors involves the bargaining relationship itself and was used in previous research [18]. Since different areas of the country have different labor-management climates, regional dummy variables can be used to test for this influence. Maximum police officer salary was used as a predictor of the strength of the particular working condition clauses. Previous research has suggested that length of a bargaining relationship, operationalized here as years with bargaining agreements, has a positive correlation with the complexity and length of a labor agreement [33]. Finally, police literature indicates that the number of officers correlates with the relative intricacy of the organization. A larger organization will require more formal rules and procedures and, since many of these rules are found in the labor agreement, it is reasonable to suspect a positive relationship between the size of police department and the strength of contractual protections, with contract length as the intervening variable.

This study includes analyses that add to the prior research by taking a more inclusive look at the range of independent variables, does not theoretically emphasize one category of variables over another, and looks closely at police-specific contract clauses by examining their antecedents on an aggregated basis as dependent variables. No other study has examined the contract provisions that

make police officer labor agreements distinct from other types of labor agreements. This specificity will help supply the details that broader research leaves unresolved.

SPECIFICATION OF THE MODEL

The dependent variable in this present analysis was the composite index score for the twenty-eight police-specific contract clauses found in police collective bargaining agreements. In addition to the composite score, clauses can be analyzed individually and/or in theoretical groupings. Figure 1 contains a list of the contract clauses, their theoretical groupings and an indication of the direction of the hypothesized relationship between the independent variables and the dependent variables.

Many of the dependent variables in this research are dichotomous, but some have three, four, five and even six possible values. As a result, to place all the variables on a comparable scale, each variable was recorded to fit within a zero to ten range, with several dichotomous variables having only a zero or ten score.

OPERATIONALIZATION OF INDEPENDENT VARIABLES

Before proceeding, the independent variables needed to be operationalized. The first legal variable, scope of bargaining allowed by state law, both the duty to bargain (meet-and-confer difference) and the range of allowable issues, set forth seven combinations of compulsion and issue scored on a zero to ten scale. Only one change in the bargaining scope occurred during the period of this study, in the District of Columbia, and that change was reflected in the 1980 environmental variables. The second legal variable, the existence/nonexistence of a state compulsory interest arbitration law is dichotomous, and these data were updated each year to account for the passage of such laws during the 1975-81 time period.

The second group of environmental antecedents was designated "socio-economic" to stress its psychosocial impact rather than to emphasize its economic impact. In this study, per capita income, the total amount of income earned by residents of a city divided by the estimated population of that city, was used as a proxy for community social status, rather than as a measure of ability to pay. While this variable was not adjusted for inflation and did not change every year, it was updated several times (1975, 1977, 1980) and comparisons are among cities and not over time, so within each data year we dealt with consistent information. The fear rate consisted of the total number of murders, manslaughters, rapes, robberies and aggravated assaults during a specific year divided by the city population expressed in thousands. For example:

$$\text{FEAR } 74 = \frac{\text{Mur } 74 + \text{Man } 74 + \text{Rap } 74 + \text{Rob } 74 + \text{Ass } 74}{1000 \text{ pop.}}$$

<u>INDEPENDENT VARIABLES</u> Environmental Factors (1974-80; Data year = X(calendar year))	<u>DEPENDENT VARIABLES</u> Police Contract Clauses (1975-81; Data Year = X+1(Jan 2nd))

<u>LEGAL</u>	Other Special Equipment Armament, Type of Sidearm Firearm Qualification Provision Armament in Squad Cars Off Duty Armament
Bargaining Scope (State Law) ---- (+) -----	Facilities Provided at Station(s) Safety Provision
Arbitration Availability (State Law) --- (+) ---	Type of Ammunition

<u>SOCIO-ECONOMIC</u>	Vacancies-Promotions Shift Assignment Involuntary Transfer Transfers
Per Capita Income ----- (-) -----	Shift Exchange Private Jobs
"Fear Rate" (crimes against persons) - (+) --	Manning Provisions
Minority Percentage ----- (+) -----	

<u>BARGAINING</u>	Disciplinary Procedures Specification of Discipline Review of Discipline Officer Bill of Rights Use-of-Force Review Personnel File
Maximum Police Officer Salary ----- (+) ---	
Length of Bargaining Relationship ---- (+) --	Call-in Pay Court Pay
Department Size ----- (+) --	Court Pay Rate Overtime Pay
Region ----- (+)* ---	Choice of Overtime Standby Pay

	Residency Requirement

<p>Note: This designation (*) means that the base region, North Central, is predicted to have stronger contract variables than the other three regions, Northeast, South, and West.</p>	

Figure 1. Theoretical model.

The fear rate, operationalized using the violent crime rate as a measure of the level of violence in a community, is not the total crime rate because the latter includes another group of crimes, "crimes against property," theft and the violation of property rights. The black percentage of the city population was an attempt to isolate the effect of race, with the rate of violent crime and community income controlled, on police officers' desire for, and potential leverage to obtain, strong working condition clauses. The "percentage black" score remained the same throughout the period because reliable available was obtained for 1970.

The last four independent variables: "maximum police officer salary," "length of bargaining relationship," "size of department," and "region" constituted the least interesting variables theoretically, but had the potential to be some of the most significant contributors to the power of the model. Maximum police officer salary in dollars per annum, obtained for all data years, included only base salary, usually that of a third or fourth year officer. The length of the bargaining relationship variables tested the proposition that contracts became more favorable to the union over time due to the increased number of opportunities the union had to negotiate favorable language, derived from subtracting the year the bargaining relationship commenced secured either through a questionnaire or computed from the available labor agreements. The size of department variable tested the proposition that unions in more complex organizations necessarily had stronger contracts because of the need to address a larger number of operational contingencies and included the number of sworn police officers and civilian police employees because of the variability with which police departments use civilian personnel for non-essential duties. The final bargaining variable, region, used four geographic regions: Northeast, North Central, South, and West, applied as dummy variables. For purpose of the analysis, the excluded or bench mark category was the North Central, the region with the longest history of public sector bargaining.

THEORETICAL MODEL

The model of the relationship between selected environmental antecedents and the existence and strength of police-specific contract clauses is presented in Figure 1. It is important to note that the environmental conditions must have had to be in place before they could possibly have had an impact on contract clauses. Therefore to have a model where variations in the environment take place concurrently with contract changes would imply clairvoyance, since the contracts for each year were those in effect on January 2. As a result, a one-year lagged model where the environmental (independent) variables were a fixed "X" year with the contract provisions (dependent variables) at "X + 1" year was used, since they were recorded as in effect on January 2 of the year "X + 1".

RESEARCH HYPOTHESES

The multitude of independent, as well as dependent, variables in this project offers innumerable hypotheses to test. However, specific hypotheses were chosen for the relationship between the independent variables and a composite of the dependent variables. All variables are tested at the .05 level of confidence. The regression equation for 1975 is:

$$\begin{aligned} \text{COMP 75} = & B_1 + B_2 \text{ LENG74} + B_3 \text{ NEAST} + B_4 \text{ SOUTH} + B_5 \text{ WEST} + B_6 \\ & \text{FEAR74} + B_7 \text{ INDX75} + B_8 \text{ TARB74} + B_9 \text{ PCI74} + B_{10} \text{ PBLA74} + B_{11} \\ & \text{MAX74} + B_{12} \text{ SIZE 74} + e \end{aligned}$$

where

- COMP75 = contract score for all twenty-eight variables as of January 2, 1975.
- LENG74 = length in years of the bargaining relationship.
- NEAST = comparison of Northeast to North Central dummy variable.
- SOUTH = comparison of South to North Central dummy variable.
- WEST = comparison of West to North Central dummy variable.
- FEAR74 = city's rate of crimes against persons for 1974 measured by the number of the following "index" crimes: murder, manslaughter, rape, robbery, aggravated assault reported to the FBI.
- INDX75 = state bargaining scope index score (0 to 10 scale). Only 1975 and 1980 values were used because one change in status affected the 1980 index.
- TARB74 = presence/absence of a compulsory interest arbitration law for police officers in the state during the designated year.
- PCI74 = per capita income of city residents. Although the year tag is for the year before the contract year, the per capita income data were actually gathered for 1975, 1977, and 1980.
- PBLA74 = percentage of city residents who are black. The year during which the information was gathered was 1970.
- MAXS74 = maximum patrol officer annual salary in the designated year.
- SIZE74 = total number of sworn police officers and civilian (non-sworn) employees of the police department during the designated year.
- e = error term

The year suffixes change throughout the seven-year period.

A positive relationship was hypothesized for the following relationships: B_2 , B_6 , B_7 , B_8 , B_{10} , B_{11} , and B_{12} , and it was hypothesized that the regional dummies, B_3 , B_4 , and B_5 , and per capita income, B_9 , would be negative. All the positive relationships represented predictions that an increase in the raw or index score for these particular independent variables would be associated with an increase in the dependent variable. Per capita income was predicted to have a negative impact on contract clauses because police officers felt a greater need for the protection and

benefits gained from the dependent variables when they operated in a city with low socioeconomic status. Furthermore, earlier passage of public sector legislation in the midwestern states, such as Wisconsin, Michigan, and Minnesota, explained the negative relationship of the other three regions with the North Central region, where such legislation did not appear until later.

The statistical techniques used to test the theoretical model included Pearson's product-moment correlation analysis and ordinary least squares multiple regression analysis. Pearson's product-moment correlation coefficients were used to check the degree to which the independent variables were intercorrelated with one another. This analysis was necessary because so many of the independent variables were theoretically related and also empirically correlated. Ordinary least squares multiple regression analysis was the primary statistical technique utilized to test the model for each of the seven years and the hypotheses that resulted from it.

DATA SET AND INFORMATION SOURCES

The data being used in this research were originally gathered and analyzed in connection with a National Institute of Justice grant during 1982-83. In addition, this author expanded the data set by gathering 1981 index crime data. Data were assembled from as many as 1077 cities for at least one year during the 1971-1981 period. However, this study concerned itself with the 504 cities where a collective bargaining agreement was in effect during the 1975-1981 time period.

City characteristics data were gathered from either the Interuniversity Consortium for Political and Social Research (ICPSR) (FIPS SMSA number, FIPS state number, and percentage black population) or the U.S. Department of the Treasury, Office of Revenue Sharing (city population and per capita income). Index crimes for 1971-80 were obtained on magnetic tape directly from the Federal Bureau of Investigation (FBI), and the 1981 Index Crime Data were obtained later from the published volume of that year. The National Bureau of Justice Statistics collected city data on full-time and part-time police employment. Data on the collective bargaining and arbitration law status of the states were acquired from the Bureau of National Affairs, *Government Employee Relations Report* (GERR), *Reference File* (Washington, D.C.: B.N.A.)

The method of collecting contract data was a mail survey conducted from January to July, 1982, of almost all U.S. cities over 25,000 population. This mail survey requested a respondent in each city to fill out and return a questionnaire that asked: If the city bargains with a police union, how long has a bargaining relationship existed; if interest arbitration exists, how many contracts have been negotiated and arbitration awards issued; if (and when) any police strikes have occurred; and, most important to this research, to return police collective bargaining agreements and interest arbitration awards covering the 1975-1981 period, to fill in missing contract data.

A total of 731 usable responses was received. Information was also collected about the bargaining status of 284 additional cities from other sources, including Dr. Casey Ichniowski at the National Bureau of Economic Research, various state public employment relations boards (PERB), and several state leagues of cities. In addition, in January, 1983, staff associates made field visits to state PERBs in nine arbitration states (Iowa, Minnesota, Wisconsin, Michigan, New York, New Jersey, Connecticut, Rhode Island, and Massachusetts) to collect several hundred contracts and awards. A total of 1,963 contracts and 348 arbitration awards was collected. Extra data collection efforts (field visits) in the nine selected arbitration states suggested that the sample of contract was not a random representation of all the police contracts negotiated in the United States during these years and that the bargaining experiences in about fifteen states (California, Connecticut, Florida, Illinois, Indiana, Iowa, Massachusetts, Michigan, Minnesota, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, and Wisconsin) were the key determinants of the analytical results.

Information was processed through the use of the computer; therefore, hundreds of police contracts were transformed into computer-usable formats. This was accomplished during July, 1982, through May, 1983, with a Kochan-type contract scoring index [16, 17, 30; see author for scoring scheme], with all scores converted to a zero-to-ten-point scale. Analysis of the police contract data involved three steps: 1) the collection of the union contracts; 2) the development of a contract scoring index, an instrument for evaluating the items in union contracts on a favorableness-to-the-union scale; and 3) the scoring of the collected agreements.

The centerpiece of this analytical method was the contract scoring index. The scoring index used included over 140 items, each of which was scored zero points for the option least favorable to the union, and ten points for the option most favorable to the union, and intermediate points for other options. All items were weighted equally.

Finally, four features of this contract index evaluation methodology suggest some caution. First, the equal weighting scheme created a bias toward contracts that contained large numbers of provisions even if these provisions were not especially favorable to the union. Second, any contract index could not possibly anticipate and score every single provision in each contract. As a result, some important contractual provisions may have been omitted from the analysis. Third, the index was not designed to pick up and record all changes in contract language, only those significant changes that were clearly more favorable or less favorable to the union. Small, incremental language changes may have gone undetected. Fourth, because they were scored during a one-year period by three different scorers, there could have been problems with maintaining both inter- and intra-rater reliability. Rigorous definition and training and all agreements within a single state being scored by the same scorer helped ensure consistency. This training, the explicit police design,

and the expanded topical areas (130 items) made the contract scoring index very useful.

Some of the limitations of this present study should be mentioned here to provide guidance to future investigators in filling the gaps that remained. Some limitations involved the use of contract clauses as dependent variables without background in their meaning, how they were negotiated, and the context of other official and unofficial personnel rules and regulations, civil service statutes and rules, chief's orders and policies. Also, there was the untested possibility that some of the contract clauses were not necessary because they already existed in one of the forms mentioned above. Crime data, especially crimes against persons, were used in this analysis as an independent variable. This might have been a problem because of documented underreporting of crime in the United States [35]. The quality of the police department might have interacted either negatively with the crime rate through more effective prevention and a significant deterrent effect or positively due to the discouraged citizens' feelings that reporting crime to such a poor department was a futile exercise. Another limitation to crime data involved the subjectivity, lack of standardization, and political manipulation at the local level. Nevertheless, because the FBI also has made greater efforts to help communities report crime in a consistent way, the crime data as reported to the FBI have become more accurate and consistently defined.

ANALYSIS AND RESULTS

The contract clauses as dependent variables were placed in five conceptual groupings as shown in Figure 1. Descriptive statistics revealed that all of the individual variables, except "use of force review," "staffing provision," and "residency requirement" grow substantially stronger over the seven years. This indicated that not only was the 1975-81 period a time of growth in the number of cities bargaining with police unions, but also that it was a time of significant increase in contract strength from a union perspective. A Chronback's alpha coefficient was figured for each of the four multivariable groupings as a test of the efficacy of the theoretical groupings. All four theoretical groupings were internally consistent as evident by average alpha coefficients that range from .567 for EQUIPMENT to .681 for BILL OF RIGHTS.

Intercorrelations

A Pearson's product-moment correlation was performed for all the independent variables during all the data years 1974-1980 to test the existence of a multicollinearity problem. Methodologically, if there were a significant degree of intercorrelation between the variables, it might have been necessary to test whether the order of entry in the ordinary least squares regression equation impacted significantly on the amount of variance that the primary variables explained.

In general, the theoretical groupings did indeed show a significant degree of intercorrelation. For instance, the scope of bargaining index and the existence of an arbitration law within each state were highly intercorrelated with a coefficient of .74 for 1974-1980, exceeding the .001 level of significance. Within the socioeconomic cluster of variables, fear rate, per capita income, and percentage black also manifested a high degree of intercorrelation. The correlation coefficients for fear rate and percentage black range from .62 to .66 during the 1974-80 data period. Somewhat less overwhelming, but still significant, were the negative correlations between fear rate and per capita income (-.19 to -.25) and between per capita income and percentage black (-.18 to -.23). All of these coefficients represented relationships significant at the .001 level. The remaining four independent variables were grouped into two subgroups: maximum salary with size of the department, and region with length of the bargaining relationship. The latter two variables had a negative relationship with a -.14 correlation coefficient significant at the .001 level. Maximum salary and size of department had positive correlation coefficients ranging from .14 to .20, and maximum salary and region also had strong and consistent positive correlations ranging from a low of .25 in 1979 to .40 in 1978. All these coefficients indicated relationships significant at below the .001 level. The Northeast region was highly correlated with higher maximum police officer salaries.

In addition to the high intercorrelation between variables within the theoretical categories, there were a number of significant correlations between variables in different theoretical categories. The length of the bargaining relationship had a significant positive correlation with both the bargaining scope and the existence of an arbitration law. The fear rate had a significant negative correlation with bargaining scope and arbitration law and a significant positive relationship with the size of department. Bargaining scope had a significant negative correlation with percentage black and maximum police officer salary. Percentage black had a correlation coefficient with the size of the department significant at the .001 level. The high intercorrelations between variables in different theoretical groupings might have resulted in methodological problems with the ordinary least squares regression equation. Because of this potential problem, the independent variables were first entered into the regression equation in several different sequences. The magnitude and significance of the beta weights of those independent variables were found to be significant when entered in reverse order. Therefore, since the order of entry of the independent variables made a negligible difference, these intercorrelations were tolerable and did not prevent the analysis from moving to the regression analysis stage.

Multiple Regression Results

The results of the multiple regression analysis for all seven years, shown in Table 1, using the composite of all twenty-eight individual variables as the

Table 1. Multiple Regression Results Dependent Variable — Composite Index

Independent Variables	1975	1976	1977	1978	1979	1980	1981
N	205	312	367	406	413	436	461
Length of Relationship	.204** (4.59)	.345** (8.04)	.297** (6.75)	.208** (4.66)	.137** (2.97)	.161** (3.55)	.100* (2.17)
Northeast	-.160** (2.59)	-.116 (1.93)	-.073 (1.18)	-.189** (3.06)	-.071 (1.11)	-.125* (1.99)	-.139* (2.19)
South	-.092 (1.63)	.103 (1.91)	.127* (2.26)	.126* (2.21)	.127* (2.19)	.146* (2.54)	.109 (1.86)
West	.048 (0.83)	.164** (2.90)	.085 (1.46)	.065 (1.09)	.024 (0.39)	-.002 (0.03)	-.050 (0.82)
Fear rate	.104 (1.77)	.151* (2.58)	.194** (3.31)	.191** (3.17)	.132* (2.19)	.156* (2.58)	.113 (1.87)
Bargaining scope	.204** (2.89)	.037 (0.53)	-.071 (1.02)	.057 (0.80)	-.025 (0.34)	.034 (0.47)	.051 (0.68)

Arbitration law	.074 (0.92)	.125 (1.62)	.220** (2.76)	.203* (2.50)	.143 (1.71)	.134 (1.63)	.002 (0.03)
Per capita income	-.004 (0.09)	.070 (1.62)	.079 (1.76)	.116* (2.51)	.014 (0.29)	-.052 (1.10)	.008 (0.18)
Percentage black	.085 (1.40)	-.045 (.075)	-.078 (1.23)	-.100 (1.59)	-.151* (2.37)	-.134* (2.12)	-.107 (1.71)
Maximum salary	-.024 (0.51)	.055 (1.21)	.013 (0.26)	-.047 (0.94)	.068 (1.33)	.087 (1.83)	-.055 (1.13)
Size of Department	-.051 (1.16)	-.050 (1.18)	-.049 (1.07)	-.011 (0.25)	-.013 (0.28)	-.003 (0.06)	.045 (0.99)
F-statistic	6.213**	9.524**	6.686**	5.282**	2.400**	3.700**	1.980*
Adjusted R square	.102	.157	.111	.086	.030	.056	.021
Standard error	146.33	141.76	139.92	129.58	130.68	116.66	98.38

*Significant at .05 level.
**Significant at .01 level.
Absolute value of T-statistic is in parentheses.

dependent variable, support the hypothesis of a positive relationship between the length of the bargaining relationship and the strength of the police-specific working condition clauses. Especially in the early years of the study when police bargaining was newer for more departments, those units that had experienced more rounds of bargaining were more successful in gaining stronger provisions in this type of contract clauses. However, by 1981, while still significant overall, the advantage of those departments with the greater amount of bargaining experience was beginning to lessen. Nevertheless, of all the eleven independent variables entered into the equation, the length of the bargaining relationship was by far the most consistent predictor of the strength of these specified contract clauses.

The three regional variables, Northeast, South, and West, presented a perplexing picture in their relationship with the strength of the composite index of contract clauses as compared to the North Central standard. All three of these regions were predicted to behave negatively when compared to the North Central region as indicators of the strength of these contract clauses. The North Central region was predicted to have stronger clauses in all categories. With this index the Northeast region was negative in relation to the base region (North Central) as predicted, and this relationship was significant during four of the seven years; the strength of these contract clauses was weaker in the Northeast than in the North Central region and significantly so in 1975, 1978, 1980, and 1981. Since the North Central region contained a number of states in which police bargaining had been encouraged by collective bargaining legislation, this outcome seemed quite understandable. On the other hand, except for 1975, which could be viewed as an aberration, the South region showed a positive relationship with the dependent variable. Four of these years (1977-1980) produced statistically significant results. This was contrary to our hypothesized North Central region leading the three others in strength. A plausible explanation for this reversal might be that, in the absence of any enabling police bargaining legislation, police unions in the South have had to be very strong to even gain *de facto* recognition. In addition, Florida, with thirty bargaining cities, had a disproportionate number of contracts. The West shared both negative and positive relationships with the base region and in only one year was such a relationship significant. The conclusion that there is not a statistically significant difference between the North Central and the West region was the only reasonable one to make.

Fear rate, the incidence of violent crime, was predicted to have a positive relationship with the strength of this group of twenty-eight variables. This independent variable was positively related to the dependent variable at a significant level during five of the seven years. The first year, 1975, and the last, 1981, were the times when the variables' relationship was found not to be significant. A high level of violent crime in a community seems to either provide for an increase in the desire by police officers for strong language in these areas or increased leverage with the city to obtain them or a combination of both.

The rest of the independent variables in the equation did not have enough statistically significant years to support their hypotheses. Some variables, such as per capita income and maximum salary, seemed to possess an erratic relationship that varied in sign as well as strength. The direction of the relationship involving percentage black and size of department, while reasonably consistent, was opposite of the prediction. A higher percentage of Blacks in the population and/or a larger staff in the police department did not portend more and stronger clauses of the type at issue here. In fact, despite what previous research has uncovered, the existence of an arbitration statute in a state, when used in concert with the other independent variable in this equation, contributed only a modest increment to the model's explanatory power. The bargaining scope was even less significant, suffering from both inconsistent directionality and weak relationship throughout the entire period.

As a predictive model for this group of twenty-eight variables, the equation seemed to work moderately well as the adjusted *R*-squares were significant for all of the seven years. In addition, three of the independent variables—length of the bargaining relationship; regional differences between the Northeast and the North Central regions; and fear rate—enjoyed statistically significant relationships. However, most of the other variables contributing to the predictive power of the model were not consistently significant over the period of study. Further, the model did not operate equally well in all years, and indeed a pattern suggested itself. The model was most effective in the early years (1975-77) of the study and declined in predictive power during the remaining years.

In comparison to other similar studies, the research presented here is most closely tied to the results offered by Feuille, Hendricks and Delaney in their study of "The Impact of Collective Bargaining and Interest Arbitration on Policing" [18]. Although the focus of their study was on the availability and use of interest arbitration, much of the same data base was also used in this study. Many of the independent variables selected for this present study were also a part of the Feuille, Hendricks, and Delaney research model.

The primary differences in the results of the two pieces of research lies in the determination of which variable contributed the most to the predictive power of the model. Feuille, Hendricks and Delaney stated that the length of the bargaining relationship "contributed very little to contract strength" [8, p. 188]. The research presented here, on the other hand, indicates that this variable, length of the bargaining relationship, was the strongest and most consistent predictor of the strength of the twenty-eight police-specific contract clauses. Nevertheless, it should be noted that the results of both studies were similar in that the strength of the relationship for this variable declines over the time of the study. In fact, by 1981 even the length of the bargaining relationship no longer had a significant positive relationship with many of the dependent variables.

Feuille et al. stated that the availability of arbitration was strongly positive in each year of the 1975-1981 time period, but for the working condition subindex

(a subindex similar to the police-specific index used here) only the first three years have significant coefficients [18, pp. 191-192, 199]. Their findings parallel this research, since almost all the significant relationships for the arbitration law independent variable can be found during the 1975-1979 period. After this time, the strength of the relationship between the existence of an arbitration law declined dramatically. Even with Feuille et al.'s overall contract strength index, notwithstanding the still significant coefficients, there was a decline in the predictive power of this independent variable.

Another major independent variable in the Feuille et al. research was what was termed Bargaining Scope. The specification of this variable was identical between the two pieces of research. The authors found the scope of bargaining to have an almost uniformly significant and positive relationship with overall police contract strength. This present study did not find any such significant relationship between the scope of bargaining index and the particular clauses used here as dependent variables. Nevertheless, Feuille et al. reported specification problems with this variable; as an alternative specification, the existence or nonexistence of a bargaining law produced a negative relationship compared to the positive relationship when using the multi-level bargaining scope variable. This conflict and the fact that the results are mixed seem to call for more careful specification of this variable in the future.

There are some other areas where the results presented here differ from those outlined by Feuille, Hendricks and Delaney [18]. Controlling for all the other specified independent variables, this research indicates that having larger police departments does not correlate with the existence of contracts with more complex contract language resulting in higher contract favorability scores. Feuille et al. reported that their data indicate that larger cities have more favorable contract provisions [18, 20]. One would think that there would be a high correlation between size of the city population and size of the police force, but the difference might be found in other factors picked up when the population variable is used.

This research suggests a weak and indeterminant relationship between maximum police officer salary and the twenty-eight police-specific working condition clauses used in this study. Feuille et al. found that police salaries and contract clauses were positively correlated in arbitration cities, and negatively correlated in nonarbitration cities [18, pp. 219-220]. While I did not attempt two separate analyses with arbitration and nonarbitration cities, the inclusion of an arbitration law variable in the regression equation should control for the differences in the two types of cities. When this effect was controlled for, no consistent pattern of interaction can be seen for maximum police officer salary and strength of contract clauses, except for a positive relationship in 1980.

Finally, however, it is the similarity between the performance of the two models over the same time period, 1975-1981, that must be highlighted. Feuille, Hendricks and Delaney states that, "Interestingly, the amount of explained variation declines over time" [18, p. 193]. The results of this study clearly indicate that

the same phenomenon occurs. The results presented here reinforce the results of the prior study, but the question still remains about why neither model is able to perform as well in the latter portion of the 1975-1981 time period. One of the possible explanations for this phenomenon is that the maturing of the institution of police collective bargaining has led to a homogeneity of contract provisions across cities subjected to a wide range of environmental conditions. Hence, these conditions no longer function as adequate predictors of such contract clauses.

In comparing this research with that done by Gerhart involving municipal workers [36], Kochan and Wheeler with firefighters contracts [30], and Delaney dealing with teachers in Illinois and Iowa [37], there appear to be more differences than similarities. The differences lie in time period, employee groups studied, the statistics used, and the specification of the independent variables. For example, Gerhart found no statistical relationship between age of bargaining relationship and contract index, consistent with the findings of Kochan and Wheeler [30, p. 342]. The results here indicate that the length of the bargaining relationship is the primary determinant of almost every dependent variable. One possible explanation for this drastic difference in results, besides the specialized nature of my target group, is that Gerhart specifies this variable as dichotomous (under three years vs. over ten years, with three to ten years as the base) rather than as a continuous variable. Some of the most significant changes in the strength of a labor agreement that may occur in the early years of the agreement were hidden in Gerhart's "young" relationship category.

IMPLICATIONS

There are several implications of this research for investigators looking to explore police collective bargaining relationships. These results suggest that splitting the environmental issue into three categories (legal, socioeconomic and bargaining) is a useful way to specify the influences on contract clauses. As the model worked reasonably well to explain the strength of this particular group of twenty-eight police officer contract clauses, it would be legitimate to assume that the environmental model, or a modified version of it, could be used to predict the strengths of the contract clauses, especially those such as grievance and arbitration procedures that so directly affect employee rights.

Another of the implications of this research is the consistency with which most of the environmental variables associated themselves to the many different contract clauses or composites of contract clauses used as dependent variables. This suggests that working condition clauses come into being and operate more as an integrated whole than as separate or even differentially grouped entities. It may be advisable, therefore, to treat these types of clauses in terms of one composite variable or one of several composite variables. For future researchers this study implies that the aggregation of dependent variables may be useful, especially since disaggregation in this case did not produce the kind of variability among the

relationships with the dependent variables that increased our understanding of them.

Among the independent variables, the industrial relations researcher should be able to see that two of the variables, which are not specific to the police business, are very strong. These two variables are length of the bargaining relationship and region, as expressed in regional differences. While these two variables may not serve as environmental antecedents in all types of labor agreements, these variables might perhaps have similar effects in other public sector collective bargaining agreements. The length of the bargaining relationship and regional differences are therefore two variables that ought to be included in any model that purports to explain contract clauses in municipal employee labor agreements.

The strength of fear rate as a predictor should direct researchers to examine variables that are closely tied to the particular type of employee group. The crimes against persons rate in a community is intimately related to police officers and probably is not useful for other employee groups. But there might be other potential independent variables that are similarly tied to the particular employee group being studied. These should be considered when constructing analytical models. It may not be possible to design, therefore, a model that fits all public employee groups if such group-specific independent variables have the same power as fear rate had with police officer contracts. The important issue here is that such variables seem to exist for particular employee groups, such as police, and should not be overlooked when investigating collective bargaining clauses in other public contracts.

Looking at some of the independent variables which do not support their hypotheses, there are several lessons to be learned. The weakness of the bargaining scope variable should point up the efficacy of informal as well as legal factors in establishing the de facto scope of bargaining in a particular state. These informal or extra legal factors may have a strong impact on the scope of bargaining. Therefore, unless the investigator comes up with persuasive evidence to the contrary, the legal scope of bargaining should not be used unquestioningly as the actual scope of bargaining.

The inability of the maximum police officer salary independent variable to positively or negatively relate to the dependent variables in this study might cause some to question both the "parallel power" and "trade-off" theories that are postulated about the relationship between this variable and the rest of the contract language. The "parallel power" theory states that a strong union can exert its power to gain favorable provisions in monetary and non-monetary clauses. The "trade-off" theory implies that the union can trade influence in monetary terms for strong non-monetary terms, and vice versa, but typically does not get both strong monetary provisions and strong non-monetary provisions. Indeed, maximum police officer salary may have to be treated as just another contract provision, albeit an important one, instead of as separate and apart from the rest of the contract language. Thus, this research seems to indicate that wages do not play a

pivotal role in explaining the presence or absence of particular contract provisions.

Finally, while the model has not proven to be a strong overall predictor of the existence and strength of contract clauses in all years, it has usefully pinpointed several statistically significant relationships with particular variables. The scoring index used for the dependent variables also functioned well, as evidenced by the strong alpha coefficients. These results should encourage further investigations to examine more fully the impact of elements of the environment on a wide variety of contract issues in a full range of industries and settings.

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Dr. Richard C. Williams is Associate Professor of Human Resource Management at Marist College, Poughkeepsie, New York. A former Personnel Director, he also previously taught at Murray State University.

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Direct reprint requests to:

Dr. Richard C. Williams
Department of Human Resources Management
Marist College
290 North Road
Poughkeepsie, NY 12601