

**COLLECTIVE BARGAINING, COMPULSORY
INTEREST ARBITRATION AND THE
NARCOTIC EFFECT: A LONGITUDINAL STUDY
OF DELAWARE COUNTY, PENNSYLVANIA***

**WILLIAM A. KLEINTOP
J. JOSEPH LOEWENBERG**

Temple University

ABSTRACT

A criticism of compulsory arbitration in interest disputes has been that parties who utilize arbitration become dependent on the procedure. This research investigates the collective bargaining experience of police and municipalities in a Pennsylvania county over a ten-year period and tests for the existence of the "narcotic effect." The results of the tests were mixed depending on the number of arbitration awards and the number of rounds of bargaining. No narcotic effect was found if negotiations ended in an arbitration award once in the last three rounds of collective bargaining or once or twice in four rounds of bargaining; however there was evidence of such an effect if there were two awards in three rounds of bargaining.

Ever since compulsory interest arbitration was instituted to resolve collective bargaining disputes, people have debated the effects of the impasse procedure [1-3]. Some researchers have investigated whether arbitration awards have resulted in higher wages and conditions of employment than would otherwise have occurred. Others have wondered whether availability of arbitration has a "chilling effect" on negotiations. One major area of interest has been whether the use of arbitration results in a "narcotic effect," i.e., dependence on arbitration in future negotiations. This article looked at the collective bargaining experience of Pennsylvania

* The authors acknowledge support for this research from a Grant-in-Aid of Research from Temple University.

municipalities in one county and their police, and investigated the existence of the narcotic effect.

Assessments of interest arbitration have encountered two types of problems. One concerns appropriate methodology. Researchers have debated the validity of different measures. We summarize the debate and arrive at our methodological preference. The second problem is with data. Prior studies have been limited by the length of the period under study and/or by the extent of bargaining. As far as we know, this study is the first to examine results of the second decade of collective bargaining where arbitration is mandated to resolve bargaining disputes.

Pennsylvania is an anomaly in the study of compulsory interest arbitration in several respects. First, Act 111 of 1968, the statute authorizing collective bargaining for police and firefighters and mandating compulsory arbitration in the event of impasses, has remained unamended since its original passage [4]. Second, Act 111 provides for conventional interest arbitration in the event of a bargaining impasse involving police or firefighters, that is, a tripartite panel may arrive at any award on outstanding issues it deems appropriate. Third, there is no repository for data on the bargaining experience under Act 111. Hence, available information has been limited to the early years of the act [5-8].

This study is part of a larger effort to find out the collective bargaining experience among Pennsylvania municipalities and their police in the second decade of Act 111, 1978-87. The larger study is based on a mail survey. The response rate and the quality of information supplied by respondents limit a reliable longitudinal study. Fortunately we came across a private file of collective bargaining agreements in Delaware County that, together with our survey data, provided substantial information on one geographic area.¹

Delaware County is one of sixty-six counties in Pennsylvania. It lies adjacent to the City of Philadelphia. Forty-one municipalities in the county have police departments; thirty-seven bargain with their police. The municipalities that bargain range in population from 652 to 84,054. The number of full-time sworn police officers in those municipalities ranges from 3 to 123; the number of part-time officers from 0 to 9. In terms of municipal organization, the municipalities that bargain include one city, twenty-two boroughs, eleven first-class townships and three second-class townships.

While the data for this research are unusually complete for Pennsylvania, they do have limitations. The data represent information from only one geographic area. It is therefore possible to account for patterns within the area, but one cannot extrapolate from the conclusions and claim they are valid in the remainder of the state.

¹ We wish to acknowledge the cooperation of Howard Richard, Esq., and the assistance of Ms. Jan Buckley of the law firm Richard, DiSanti, Hamilton and Gallagher in Media, Pennsylvania, in making available their data.

NEGOTIATIONS OUTCOMES

The annual collective bargaining experience of thirty-seven municipalities in Delaware County and their police for the decade 1978-87 is summarized in Table 1. During the decade there were 174 known sets of negotiations, ranging from a low of eight sets in 1985 to twenty-three sets in 1984. The difference in the number of negotiations from year to year may be explained by multiyear agreements or awards. The number of negotiations in even years has always been larger than those in the succeeding odd year.

Of the 174 sets of negotiations, 140 were settled by the parties. Hence, the parties settled more than 80 percent of their negotiations, and arbitration occurred in only 19 percent of the sets.

A total of thirty-three interest arbitration awards were issued during the decade. The absolute annual number ranged from zero to nine awards. The percentage of negotiations ending in an arbitration varied from none in 1979 to 42.9 percent in 1980. A significant difference emerges in the rates of arbitration awards issued in even-numbered and odd-numbered years. Overall, the proportion of negotiations ending in arbitration was 23.8 percent in even-numbered years and 13 percent in odd-numbered years. While many factors could account for such a variation, there appears to be a relationship between the number of negotiations occurring in a given year in the county and the incidence of arbitration awards resulting from such negotiations. The relationship is not definitive in any particular year, however, as

Table 1. Yearly Results of Collective Bargaining between
Municipalities and Police in Delaware County, Pennsylvania

<i>Year</i>	<i>Parties Did Not Negotiate</i>	<i>Parties Negotiated</i>	<i>Settled</i>	<i>Applied For Arbitration But Settled</i>	<i>Received an Arbitration Award</i>	<i>Missing Data</i>
1978	12	22	20	1	1	3
1979	21	16	14	2	0	0
1980	14	21	11	1	9	2
1981	18	17	13	2	2	2
1982	17	20	18	1	1	0
1983	22	15	10	2	3	0
1984	14	23	15	1	7	0
1985	29	8	6	0	2	0
1986	18	19	11	1	7	0
1987	24	13	9	2	1	0
Total	189	174	127	13	33	7

noted by the fact that the proportion of awards to negotiations was below 6 percent in two even-numbered years and above 10 percent in three odd-numbered years.

Since this study focused on the existence of the narcotic effect of arbitration, examination of the bargaining experience of individual municipalities and their police was necessary. Use of arbitration was concentrated in particular bargaining relationships in the ten-year period, with only twenty of the thirty-seven parties receiving an arbitration award. Of these, eleven received one arbitration award, five received two awards, and four received three awards. Thus, one-fourth of those bargaining received 55 percent of all arbitration awards issued in the decade. In no case did a municipality and its police rely exclusively on arbitration awards to set wages and other items of an agreement. Sixteen of the nineteen sets of parties who received awards succeeded in negotiating settlements in 50 percent or more of the occasions in which they bargained. The remaining three sets of parties relied on arbitration to resolve impasses in a majority of their bargaining situations. The three share no features to distinguish them from the remainder of the group or to account for their relative dependence on arbitration.

MEASURING THE NARCOTIC EFFECT

A major question concerning compulsory interest arbitration is whether use of such arbitration reduces parties' willingness to bargain in succeeding rounds. According to the hypothesis of the narcotic effect, parties who receive an arbitration award grow increasingly dependent on arbitration to resolve future negotiations. The answer to the question has practical and public policy implications.

Previous researchers have debated the existence of the narcotic effect and how to measure it. Kochan and Baderschneider performed regression analysis on data from the State of New York and found an observable narcotic effect, particularly in the larger cities [9]. Reviewing the same data with different statistical techniques, Bernoulli-runs tests, Butler and Ehrenberg found only short-term narcotic effects; thereafter, a negative narcotic effect of arbitration in the last three rounds of bargaining [10]. Using a larger data base, Chelius and Extejt also found the positive narcotic effect disappearing after the first years of bargaining [11]. Chelius and Extejt used the Armitage test which detects not only deviations from a predicted distribution but also tests for a particular order, a necessary condition for evaluating the narcotic effect. Olson in reviewing these works suggested that single-factor probit models would be appropriate for testing for narcotic effects [12].

Deciding on an appropriate statistical technique is a function of the objective and of available data. Our data, a combination of archival and survey data, include the experience of ten years of bargaining but provide a limited number of data items for each bargaining period. The quantity of available data argues against using regression or probit analysis. Given our data, we are convinced that the Armitage test is appropriate for determining the existence of a narcotic effect.

RESULTS

Armitage tests [11, 13] were run for two sets of data (Table 2)—the last three and last four bargaining rounds of participating municipalities. The data within each set were segregated into those communities having one impasse and those having two impasses so as to isolate other factors, such as heterogeneity, that influence the probability of impasse [9, 11]. No communities in the data set received more than two awards in the last three or four rounds of bargaining.

The results of the Armitage tests for the last three rounds of bargaining were mixed. Eleven communities entered into the analysis for one impasse. The communities' experience showed no obvious trend toward increased use of arbitration. The Armitage test supported this observation—a narcotic effect was not found at the 0.05 significance level.

Six Delaware County communities had two impasses in the last three rounds of bargaining. The patterns displayed for this group show an increasing trend, particularly for the third pattern, an arbitration award in the second and third rounds. The Armitage test verified the existence of a narcotic effect for this group of communities. Combining the data provided in the three patterns, summing the results and restandardizing the statistic [11] provided evidence that in the last three rounds of bargaining, a positive narcotic effect did exist for communities in Delaware County.

Armitage tests were also run for the last four bargaining rounds for communities with only one impasse and for those with two impasses (Table 2). In both cases, and in their combination, neither a positive or a negative narcotic effect was found.

CONCLUSION

This study investigated the negotiating experience among municipalities and their police in one Pennsylvania county. It offers comprehensive information on the bargaining experiences of municipalities and their police in that one geographic area. It provides an opportunity to study the effects of the availability of compulsory arbitration to resolve negotiating impasses in the second decade of statutory authorization. The overall rate of arbitration was significantly below that established for the initial rounds after statutory authorization, although it is still higher than in jurisdictions with other forms of interest arbitration [5-8].

The evidence on the existence of the narcotic effect continues to be ambiguous. While there was no evidence of a narcotic effect if negotiations ended in an arbitration award once in the last three rounds of bargaining or once or twice in the last four rounds of bargaining, the statistical tests indicated positive evidence of a narcotic effect in the case of two arbitration awards in the last three rounds of bargaining.

Table 2. Armitage Test Results for Three and Four Rounds of Negotiation

<i>One Impasse in Three Rounds</i>							
	<i>Pattern</i>						
	<i>100</i>	<i>010</i>	<i>001</i>	<i>Total</i>			
Number of Units Having Pattern	2	4	5	11			
Number of Units Not Having Pattern	9	7	6	22			
Total	11	11	11	33			
C = 116 S = 66							
D = 50 V = 2440.166							
S* = 1.336, $z_{.05} = 1.96$. Accept H_0 .							
<i>Two Impasses in Three Rounds</i>							
	<i>Pattern</i>						
	<i>110</i>	<i>101</i>	<i>011</i>	<i>Total</i>			
Number of Units Having Pattern	0	1	5	6			
Number of Units Not Having Pattern	6	5	1	12			
Total	6	6	6	18			
C = 61 S = 60							
D = 1 V = 406.5882							
S* = 2.976, $z_{.05} = 1.96$. Reject H_0 .							
<i>One Impasse in Four Rounds</i>							
	<i>Pattern</i>						
	<i>1000</i>	<i>0100</i>	<i>0010</i>	<i>0001</i>	<i>Total</i>		
Units Having Pattern	2	1	3	3	9		
Units Not Having Pattern	7	8	6	6	27		
Total	9	9	9	9	36		
C = 115 S = 45							
D = 70 V = 2811.857							
S* = 0.849, $z_{.05} = 1.96$. Accept H_0 .							
<i>Two Impasses in Four Rounds</i>							
	<i>Pattern</i>						
	<i>1100</i>	<i>1010</i>	<i>1001</i>	<i>0110</i>	<i>0101</i>	<i>0011</i>	<i>Total</i>
Units Having Pattern	1	1	1	0	1	3	6
Units Not Having Pattern	6	6	6	7	6	4	29
Total	7	7	7	7	7	7	35
C = 136 S = 63							
D = 73 V = 1989.4							
S* = 1.412, $z_{.05} = 1.96$. Accept H_0 .							

11. J. R. Chelius and M. M. Extejt, The Narcotic Effect of Impasse Resolution Procedures, *Industrial and Labor Relations Review*, 38:4, pp. 629-638, July 1985.
12. C. A. Olson, Dispute Resolution in the Public Sector, in *Public Sector Bargaining*, 2nd edition, B. Aaron, et al. (eds.), Bureau of National Affairs, Washington, D.C., pp. 160-188, 1988.
13. B. W. Brown, Jr. and M. Hollander, *Statistics: A Biomedical Introduction*, John Wiley & Sons, pp. 212-214, 1977.

Direct reprint requests to:

Joseph Loewenberg
School of Business and Management
Department of Human Resource Administration
Temple University
Philadelphia, PA 19122