

Resolution of Complaints by OSHA in Union and Non-Union Manufacturing Organizations

Dr. Robert F. Scherer, Management, Wright State University
Dr. Daniel J. Kaufman, Management, Wright State University
Dr. M. Fall Ainina, Management, Wright State University

Abstract

The current study reviewed the OSHA complaint inspection and resolution process in union and nonunion firms to identify potential differences in outcomes. Results revealed that it was possible to distinguish between union and nonunion firms on the basis of seven objective OSHA inspection and complaint resolution factors. Implications of bargaining with OSHA, union effectiveness in the resolution process, and the importance of having a formal grievance system in nonunion firms are discussed.

Introduction

Regulation by governmental agencies is generally recognized as costly for business firms. The total cost of federal regulation has been estimated at more than \$125 billion annually (Bowden, 1992). Regulation can be classified as either economic or social, depending on the objectives to be achieved. Early regulation was primarily economic in nature and dealt with issues related to market structure. More recently, regulation has been targeted at social issues. Social regulation includes environmental, safety and health, and equal employment concerns (Luthans, Hodgetts, & Thompson 1990). In contemporary American society labor unions are perceived as a formal mechanism for employees to collectively influence the organization's implementation of policies related to social issues and regulation (Carrell & Heavrin, 1988).

It is generally recognized that one of the primary reasons that workers join unions is related to the perception of job safety. Unions are viewed as social agents for protection from job hazards. Robinson (1988; 1990) reports strong support for the hypothesis that hazardous working conditions exert a strong influence on workers' desire for a collective means of expressing job dissatisfaction. Several studies suggest that jobs with hazardous working conditions are more likely to be organized than jobs with less hazardous conditions (Duncan & Safford, 1980; Hirsch & Berger, 1984; Leigh, 1982; Worrall & Butler, 1983).

In the current research, the complaint resolution process of the regulatory agency most concerned with worker safety, the Occupational Safety and Health

Administration (OSHA), is examined to determine whether the presence or absence of unions results in differential outcomes for organizations. Many union members believe the presence of a union results in more vigorous enforcement of health and safety regulations because of a perceived accountability of the agency to the union. Specifically, this research uses the results of inspections emanating from worker complaints about workplace safety, and resolution of these complaints, to investigate the validity of worker perceptions that unionization in manufacturing facilities provides greater protection to employees from hazardous working conditions than is received by workers without union representation. In addition, the potential differences in outcomes of OSHA complaint inspections on management in union and nonunion firms is investigated.

OSHA and the Complaint Resolution Process

The Occupational Safety and Health Act

President Nixon signed into law the Occupational Safety and Health Act on December 29, 1970. Section 2(b) stated the goal of the act was to "assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources." The Act applies to all (except those covered by separate legislation, e.g., mining industry) privately owned businesses in all states and Puerto Rico. The Act created OSHA within the Department of Labor. OSHA was charged with responsibility to (1) set standards, (2) inspect work places to assure compliance, (3) enforce standards, and (4)

provide standards implementation consultation to business. The inspection of work places is either initiated by OSHA as part of its compliance responsibility or may result from a complaint filed by a worker concerned about safety in the workplace. Since OSHA has only a limited number of inspectors, most inspections result from worker complaints.

OSHA uses a "worst-first" approach to selecting firms for inspection, concentrating on industries with the most severe health hazards and injury rates (Ledvinka & Scarpello, 1991). Under OSHA legislation, states may assume occupational safety and health responsibilities provided that state programs are judged to be at least as effective as federal OSHA programs. Funding for state programs that meet requirements is provided by the federal government, up to fifty percent of the cost of the state program. To date, twenty-one states have initiated separate programs (Bartel & Thomas, 1985).

Inspection and Complaint Resolution Process

Regardless of the impetus for the inspection, OSHA regulations specify no prior notification of an inspection can be given to the employer (Ledvinka & Scarpello, 1991). Both the employer and the employee group may designate a representative to accompany the OSHA inspector. The employee representative must be paid for time spent accompanying the inspector. After the inspection, citations may be issued for violation of standards. The citation includes the determination of appropriate penalties and an abatement period, the period of time over which the employer must correct the standard violation. The employer and the agency may reach an "informal settlement," wherein the parties reach a negotiated agreement to correct the violation without a formal hearing. The informal settlement may result in a reduction of the proposed penalty. While businesses likely find OSHA standards both difficult to comply with and expensive to meet, severe penalties for noncompliance resulting from worker injury and death are becoming more common (Kahn, 1987). Employers may be subjected to criminal as well as monetary penalties for noncompliance.

Current Research

Both union and nonunion firms are covered by the same OSHA regulations and inspection procedures, and are held accountable for the same types of potential violations. However, as Bartel and Thomas (1985; 1987) observed, OSHA regulations have a differential impact on the organization depending on union status. To identify how OSHA inspections made on employee complaints may contribute to this impact, the current study had as its objectives (1) to determine if the inspection and complaint resolution process in unionized firms can be distinguished from the process in nonunion-

nized firms, and (2) to identify potential differences on specific characteristics of the inspection and complaint resolution process in union and nonunion organizations. Thus, OSHA cases originating from an employee complaint are reviewed. Understanding how the process might differ in union and nonunion firms would allow recommendations on how organizations might cope more effectively with OSHA's regulatory activities. Moreover, results would indicate what effects, if any, union presence has on how vigorously the OSHA complaint inspection and resolution process is conducted.

Method

Data for this investigation were obtained from the OSHA Management Information System (MIS) tapes. These tapes contain data concerning field inspections, citations for standards violated, and investigation outcomes. Since 1972 over 1,000,000 workplace inspections have been conducted by federal and state OSHA inspectors and recorded on the MIS tapes.

Given there are variations in the type and scope of inspections conducted by state agencies, only states coming under federal inspection jurisdiction (i.e., those without state OSHA programs) were selected. All manufacturing industry inspections initiated by an employee or employee work group complaint, filed between 1972 and 1990 were included in the study. Furthermore, to be selected for the study, a citation for violating a health or safety standard had to be issued to the firm as a result of the inspection. For the current sample, over 95 percent of complaint inspections resulted in citations being issued. Organizations meeting the initial selection criteria were segmented into two groups labeled union firms ($n = 5,304$) or nonunion firms ($n = 9,992$).

Firms in this sample encompassed the range of manufacturing SIC codes. The majority of organizations (94.39 percent) were cited for violating general industry safety and health standards. Examples of these standards include fire protection, machine guarding, and equipment operation. Recordkeeping standards, although the second most frequent category, were violated to a much lesser degree by the sample firms (2.74 percent). This type of standard includes lack of safety and health records and failure to report workplace injuries, for example. A variety of miscellaneous standards were violated, and also accounted for only a small number (2.87 percent) of the total citations issued.

Because the objective of the study was to identify potential differences in OSHA complaint resolution by union status, representative variables characterizing various aspects of the process, including outcomes, were chosen. Since there is no precedent for conducting

studies of the process, variables were selected from the OSHA field operations manual (U.S. Department of Labor, 1989). The manual, used by OSHA inspection personnel, describes both the inspection and complaint resolution processes, as well as the corresponding data to be collected.

Seven variables were included in the set. Length of time spent on the inspection (e.g., inspection research, response to denial of violations, court testimony preparation) and the number of hours spent at the worksite (i.e., inspecting the area identified in the complaint, talking with management and employee representatives) provided a gauge of inspection scope and intensity. These two variables include compulsory activities and time frames for completion based upon the specific investigation. Their values are dependent upon the degree to which management and employee groups question or contest aspects of the inspection and resolution process.

Lost workday injury rate was used to identify the frequency of accidents in small and large organizations. This information is computed after the inspector compiles injury and employment data. Computation is based upon the standard Bureau of Labor Statistics formula.

Employee involvement in the inspection process was determined by whether an employee was present during a complaint inspection. Representatives of employees include (1) a union employee representative designated by a union official, (2) an employee safety committee representative designated by the committee, or (3) an employee who is knowledgeable and representative of employee interests as designated by the inspector. During the walk-around, an employee representative may point out hazardous conditions to the inspector and be generally involved in all aspects of the inspection process, including answering questions.

Three variables were utilized to assess outcomes. A violations per employee variable was computed to assess inspection outcomes. The other two variables evaluated the OSHA/business organization bargaining process. Specifically, whether an informal settlement on the violations was reached and the degree to which a penalty reduction was negotiated were included. Note that both citations may be disputed and penalties may be negotiated during informal settlement conferences. The appendix contains operational definitions for each of the seven variables.

Results

A review of bivariate correlations for the inspection and resolution variables was conducted as a preliminary analysis. Correlations between pairs of the inspection process and outcome variables are displayed in Table 1. Significant ($p < .05$) correlations ranging from $-.46$ to $.21$ were obtained. These relatively low to weak associations show the small amount of overlap in variance between the variables, indicating each identifies a unique part of the complaint resolution process.

To accomplish the first research objective, a discriminant analysis was performed to determine whether the OSHA inspection and complaint resolution process could be distinguished by organization union status. The seven inspection process and outcome variables served as the discriminators. The discriminant function derived was significant ($p < .01$). Results of the classification analysis are shown in Table 2. Using the set of inspection process and outcome variables, 83.11 percent of the total cases were correctly classified into union status groups. The model was quite effective at predicting membership in the nonunion group (90.87 percent correctly classified). For union firms, the classification rate was less accurate (68.50 percent correctly classified), but still moderately strong. Overall, classification based on the discriminating variables made 62 percent fewer

Table 1
Pairwise Correlations Between Inspection Process and Outcome Variables¹

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Inspection time on-site	.23	.01	.10*	.06*	.00	.21*	.02*
2. Violations per covered employee		.03	.02*	-.01	.01	-.02*	.00
3. Walk-around conducted			.97	.08*	.05*	.05*	.04*
4. Lost workday injury rate				.23	-.01	.00	.04*
5. Penalty reduction					-.12	-.03*	-.46*
6. Length of investigation						.08	.01
7. Informal settlement							.11

¹Diagonal elements are standardized canonical coefficients
* $p < .05$

errors than would be expected by chance assignment to groups. Thus, this analysis provided support for the ability to distinguish the OSHA inspection and complaint resolution process by the union status of the organization.

For the walk-around and informal settlement variables, coded dichotomously, chi-square analyses were conducted. Each analysis revealed significant ($p < .01$) differences between groups. In both union and non-union firms, there were more formal than informal

Table 2
Classification Results Matrix
by Union Status

Actual Group	Cases (n)	Predicted Group Membership			
		Union firm		Nonunion firm	
		n	%	n	%
Union firm	5,304	3,633	68.50	1,671	31.50
Nonunion firm	9,992	912	9.13	9,080	90.87

Total cases correctly classified = 83.11%

A review of the standardized canonical discriminant coefficients was carried out to identify the relative contributions of inspection and complaint resolution variables to differentiation between union and nonunion firms (see diagonal of Table 1). The most important discriminating factor was whether an employee walk-around with the OSHA inspector was conducted. Both inspection time on-site and lost workday injury rate made moderately strong contributions to differentiating between organizations based on union status. Moderate to weak contributions were made by the other four inspection process and outcome variables.

The second research objective was to identify specific differences, by union status, on individual characteristics of the OSHA inspection and complaint resolution process. Attention focused on potential differences in magnitude and direction of five inspection and outcome characteristic variables. Univariate F-tests were performed to assess potential between group differences (see Table 3 for F-tests and means).

All F-tests revealed significant ($p < .05$) differences between groups. A closer review of these differences, by characteristic variable, revealed how the process was conducted in union and nonunion organizations. OSHA inspectors spent the least number of hours on-site for inspections in nonunion firms. There were more violations per covered employee in union firms. In nonunion firms, the lost workday injury rate was lower than in union firms. During the settlement phase of the complaint resolution process, union firms were able to negotiate a greater percentage penalty reduction than nonunion firms. Taken collectively, these results support differential handling of safety and health complaints by OSHA on individual characteristics of the inspection and complaint resolution process in union and nonunion organizations.

settlements of complaints, although nonunion firms had the greatest likelihood of settling complaints informally. Most walk-around inspections were conducted in union firms. This result was not unexpected as the union provides a formal employee representation mechanism. However, in nonunion firms over 90 percent of the inspections conducted did not have an employee present. These results provided additional evidence of differences in the complaint inspection and outcome process by union status.

Discussion

The objectives of this study concerned identification of potential differences in the safety and health complaint resolution process by OSHA in union and non-union organizations. Results revealed differences in inspections and outcomes by union status. Overall, it was possible to classify firms, with accuracy, based upon factors representing the scope, intensity, and formal/informal aspects of the complaint resolution process. A closer review of the individual variables highlighted specific union and nonunion firm differences on all variables. Although the results of this study are limited to complaint resolution in manufacturing firms and the analytic model does not include the full range of factors affecting the complaint inspection and outcome process, some tentative conclusions can be drawn.

The first implication which can be drawn from the results concerns conventional union thinking. Typically the union is seen as a protector and advocate for labor concerns. However, the results of this study indicate this union contention must be tempered. Overall, the inspection phase of the complaint investigation and resolution process appears to be more vigorous in firms which have a union. Evidence was provided which showed more citations were issued per employee in union firms as well as greater time spent on-site and

Table 3
Univariate F-tests and Means
for Inspection Process and Outcome Variables

Variable	F	p	Means	
			Union	Nonunion
1. Inspection time on-site	338.13	.00	141.39	76.56
2. Violations per covered employee	5.71	.02	1.43	1.00
3. Last workday injury rate	355.94	.00	5.11	2.91
4. Penalty reduction	97.72	.00	4.48%	2.21%
5. Length of investigation	47.45	.00	176.20	154.98

time for the total investigation to be completed. However, when resolving violations in unionized firms management is able to negotiate larger penalty reductions than in nonunion firms. Lost workday injury rates are also the greatest in unionized firms. Thus, while unions may offer constituent members an outlet to confront management on safety and health issues, their ability to have management formally penalized and lower injury rates seems limited when OSHA is used as a means for resolving the issues.

The second implication of the current study's results deals with the perceived bargaining power of firms without employee unions. As shown in the analyses conducted, the time spent on-site by OSHA inspectors, total length of the investigation, the violations per employee, and the lost workday injury rates were the lowest for the nonunion organizations. These characteristics of the complaint inspection and resolution process suggest management in nonunion firms have some advantage over management in union firms in interacting with OSHA inspectors. However, when considering that administrators in nonunion organizations were able to negotiate less of a penalty reduction for violations when compared to their union counterparts a seeming paradox emerges. One explanation concerns the perceptions of managers in nonunion businesses and their perceived efficacy at dealing with federal regulation.

The current results may indicate a lack of perceived bargaining power by management in nonunion firms in working with OSHA inspectors and administrators to resolve violations stemming from complaints. Support for this proposition is gained through the recognition that in the current study nonunion firms were more likely than their unionized counterparts to resolve violations through an informal agreement process. Managers of nonunion organizations may have believed that additional human and financial resources could be used more efficiently in other operating and marketing areas, than spending legal and financial resources in formal settlements and court proceedings with OSHA. In effect, business principals in nonunion organizations

may view themselves as unable, or may be unwilling to expend resources on federal safety and health regulation bargaining activities. The most effective way to resolve violations, as viewed by these managers, may be to negotiate a quick settlement and shift to issues which offer greater opportunities for perceived control.

Yet, the objective results indicate that management of nonunion firms are in a position to bargain effectively with OSHA. With fewer violations per employee and lower injury rates, a case can be made that nonunion businesses are making efforts to meet the spirit of OSHA regulations. This knowledge could be used by the nonunion firm's bargaining agent in negotiations with OSHA during the resolution phase. Low injury rates and few violations are important bargaining items when negotiating settlements.

Even though settling informally with OSHA is compelling for nonunion businesses, characteristics of the inspection should be used as competitive bargaining tools to obtain penalty reductions and contest citations where possible, to achieve outcomes similar to managers in unionized organizations. Abatement costs associated with citations can be quite high. The ability of a firm to effectively negotiate citations and penalties may be a reflection of its ability to also lower its abatement costs and overall cost of compliance with federal regulation.

A third implication of the current study's results has do with how grievances are approached in nonunion firms. Although no direct test was made of the grievance procedure for employees in the sample, Roberds (1990) indicates that formal grievance systems are less likely in nonunion organizations. Attending to this observation may be useful in avoiding safety and health complaints.

OSHA regulations guarantee the employee's right to file a complaint without retribution from management (Luthans, Hodgetts, & Thompson, 1990). In the current study, employees may have been using the OSHA complaint process as a vehicle for expressing discontent

with various health and safety practices in the nonunion organization. Without a formal procedure to air health and safety grievances to management, these employees may have sought to use federal regulation. This observation is partially supported by the result that fewer employee walk-arounds with OSHA inspectors were conducted in nonunion organizations, possibly indicating the desire of employees to preserve their anonymity from management. Thus, employees may have viewed the OSHA complaint procedure as the only formal mechanism to resolve safety and health concerns in the workplace.

Management practitioners in nonunion firms may be well advised to develop even a modest grievance procedure for employees to resolve safety and health concerns before they reach OSHA as complaints. Research conducted by Robinson (1988; 1990) indicates that workers are likely to vote pro-union when there is a perception that the organization is unsafe and presents health hazards. Certification of a union in a previously nonunion firm has the potential to bring additional work rules, negotiation time, and pay demands to constrain management. The net result would be increased administrative costs and decreased job satisfaction. Roberds (1990) found that for employees in nonunion firms, when a formal grievance procedure was present, managers were generally perceived as fair, if the system was applied in an equitable manner. One effective way to deal with OSHA would be for managers in nonunion businesses to ensure through constructive and rational means, that complaints to OSHA have a low probability of being filed. A variety of such grievance systems are available to managers for implementation, based upon characteristics and culture of the firm (Balfour, 1984; Bohlander & White, 1988).

The major findings of this study imply that there are differences in how the inspection and complaint resolution process is handled in union and nonunion manufacturing firms. Management in nonunion organizations must make use of their ability to use objective data from the inspection to bargain effectively. Furthermore, it is important to have a grievance procedure in place for employees to utilize. Future research would do well to not only investigate other characteristics of the inspection process, but to identify effective and ineffective bargaining and grievance strategies for nonunion firms. The current results indicate that managers in nonunion businesses may only have a perceptual disadvantage in dealing with OSHA.

Suggestions For Future Research

Future research would do well to not only investigate other characteristics of the inspection process, but also to identify effective and ineffective bargaining and grievance strategies for nonunion firms. In addition,

other variables which describe the complaint resolution process should be included in subsequent research. This will help to further identify differences between union and nonunion firms. ❷

References

1. Balfour, Alan, "Five Types of Non-union Grievance Systems," *Personnel* 61 (March-April), 67-76, 1984.
2. Bartel, Ann P., and Lacy Glenn Thomas, "Direct and Indirect Effects of Regulation: A New Look at OSHA's Impact," *Journal of Law and Economics* 28 (April), 1-25, 1985.
3. Bartel, Ann P., and Lacy Glenn Thomas, "Predation Through Regulation: The Wage and Profit Effects of the Occupational Safety and Health Administration and the Environmental Protection Agency," *Journal of Law and Economics* 30 (October), 239-264, 1987.
4. Bohlander, George W., and Harold C. White, "Building Bridges: Non-union Employee Grievance Systems," *Personnel* 65 (July-August), 63-66, 1988.
5. Bowden, Elbert V., *Economics: The Science of Common Sense*, 7th. ed. Cincinnati, OH: South-Western Publishing Co., 1992.
6. Carrell, Michael R., and Christina Heavrin, *Collective Bargaining and Labor Relations*. Columbus, OH: Merrill Publishing Company, 1988.
7. Duncan, Greg J., and Frank P. Safford, "Do Union Members Earn Compensating Wage Differentials?," *American Economic Review* 70 (June), 355-371, 1980.
8. Hirsch, Barry, and Mark Berger, "Union Membership Determination and Industry Characteristics," *Southern Economic Journal* 50 (January), 665-679, 1984.
9. Kahn, Joseph P., "When Bad Management Becomes Criminal," *INC* 9 (March), 46-50, 1987.
10. Leigh, J. Paul, "Are Unionized Blue Collar Jobs More Hazardous Than Nonunionized Blue Collar Jobs?," *Journal of Labor Research* 3 (Summer), 349-357, 1982.
11. Ledvinka, James, and Vida G. Scarpello, *Federal Regulation of Personnel and Human Resource Management*, 2nd. ed. Boston, MA: PWS-Kent Publishing Co., 1991.
12. Luthans, Fred, Richard M. Hodgetts, and Kenneth R. Thompson, *Social Issues in Business: Strategic and Public Policy Perspectives*, 6th. ed. New York, NY: Macmillan Publishing Co., 1990.
13. Roberds, Darryel, "Formal Grievance Procedures for Employees in Small Non-union Companies: It Can Make a Difference," in *Proceedings of The Council on Employee Responsibilities and Rights*, ed. Roger L. Anderson and James W. Robinson, 54-66, 1990.
14. Robinson, James C., "Workplace Hazards and Workers' Desires for Union Representation,"

- Journal of Labor Research* 9 (Summer), 237-249, 1988.
15. Robinson, James C., "Worker Responses to Occupational Risk of Cancer," *The Review of Economics and Statistics* 72 (August), 536-541, 1990.
 16. U.S. Department of Labor, *Revised Field Operations Manual*. Washington, DC: Assistant Secretary for Occupational Safety and Health, Office of General Industry Compliance Assistance (OSHA Instruction CPL 2.45B), 1989.
 17. Worrell, John D., and Richard J. Butler, "Health Conditions and Job Hazards: Union and Nonunion Jobs," *Journal of Labor Research* 4 (Fall), 339-347, 1983.

Appendix
Operational Definitions for Inspection Process
and Outcome Variables

Variable	Definition
1. Inspection time on-site	Amount of time (in hours) spent in establishment or at jobsite by OSHA inspector.
2. Length of investigation	Number of days for all inspection activities from date case was opened until case was closed.
3. Penalty reduction	Percentage change from initial penalty assessed as a result of negotiation with OSHA.
4. Lost workday injury rate	Injuries and/or illnesses or lost workdays per 100 full-time employees per year.
5. Violations per covered employee	Number of Standards cited per employee covered by the inspection.
6. Informal settlement	An agreement reached by the parties during an informal conference to resolve any safety or health standards cited and penalty payments due (coded 0 = no; 1 = yes).
7. Walk-around conducted	Employee representative was present during the inspection (coded 0 = no; 1 = yes).