# The Declining Effects of OSHA Inspections on Manufacturing Injuries, 1979-1998

## Citation

Citation: Gray, W., & Mendeloff, J. (2005). The declining effects of OSHA inspections on manufacturing injuries, 1979-1998. *Industrial and Labor Relations Review*, 58(4), 571–587.

## Highlights

- The study's objective was to examine the effect of federal OSHA inspections in manufacturing establishments on workplace injuries during three separate time periods: 1979–1985, 1987–1991, and 1992–1998.
- The study used a regression model to compare the changes in workplace injuries in manufacturing establishments that had received an inspection within the past four years to those in establishments that had not received inspections.
- The study found that OSHA inspections were associated with statistically significant reductions in lost-workday injuries of 10 percent in 1979–1985 and 4 percent in 1987–1991, but had no statistically significant effect on these injuries in 1992–1998.
- The quality of causal evidence presented in this study is low. This means we are not confident that the differences in workplace injuries between firms that did and did not receive OSHA inspections are attributable to the inspections.

## Type of OSHA Enforcement Activities and Outcomes

The study examined the effect of OSHA inspections in manufacturing establishments on workplace injuries during three separate time periods: 1979–1985, 1987–1991, and 1992–1998. It analyzed the effect of having an inspection at any time during the preceding four years. Several types of OSHA inspections were analyzed: all inspections, inspections that resulted in a penalty, programmed inspections that resulted in a penalty, programmed inspections that did not result in a penalty, complaint inspections that resulted in a penalty, and complaint inspections that did not result in a penalty. In general, programmed inspections were conducted at randomly selected firms in high-injury industries, and complaint inspections were triggered by complaints filed by employees or their representatives.

## Features of the Study

The study used a regression model to compare the changes in workplace injuries in firms that had received an inspection within the preceding four years to those in firms that had not received inspections. The model included controls for employment, hours, industry, and year.

The authors used injury data from the Bureau of Labor Statistics Survey of Occupational Injuries and Illnesses and inspections data from OSHA's Integrated Management Information System for manufacturing establishments in the 29 federal OSHA states from 1979 to 1998. The sample included 6,842 plants in 1979–1985, 14,386 plants in 1987–1991, and 8,161 plants in 1992–1998.

## Findings

- The study found that OSHA inspections as a whole were associated with statistically significant reductions in lost-workday injuries of 10 percent in 1979–1985 and 4 percent in 1987–1991, but had no statistically significant effect on these injuries in 1992–1998.
- OSHA inspections that resulted in a penalty were associated with statistically significant decreases in lost-workday injuries in 1979–1985 (19 percent) and 1987–1991 (11 percent).
- Programmed OSHA inspections that resulted in a penalty were associated with statistically significant reductions in lost-workday injuries in 1979–1985 (19 percent) and 1987–1991 (13 percent). However, programmed OSHA inspections that did not result in a penalty were associated with statistically significant increases in these injuries in 1987–1991 (10 percent) and 1992–1998 (18 percent).
- OSHA inspections triggered by a complaint that resulted in a penalty were associated with statistically significant decreases in lost-workday injuries in 1979–1985 (12 percent) and 1987–1991 (6 percent), and OSHA inspections triggered by a complaint that did not result in a penalty were associated with statistically significant decreases in these injuries only in 1979–1985 (9 percent).

## Considerations for Interpreting the Findings

In this study, the estimated differences between firms in the changes in injury rates may not be caused by the OSHA inspections. The differences in injury rates could reflect underlying differences in safety levels or other factors between the firms being compared. For example, the firms that received inspections based on complaints likely had more underlying workplace hazards, on average, than firms that were not inspected; therefore, we cannot be confident that the groups being compared are similar in any analysis that includes this inspection type.

A comparison of only firms that received random inspections relative to all similar plants would provide a strong test of the causal impact of random inspections. However, the analysis in this study introduced nonrandom factors because it estimated impacts separately for firms that received random inspections and did or did not receive a penalty. For example, the firms that received a penalty may have experienced different changes in injury rates as conditions deteriorated or because management would have made improvements to address unsafe working conditions, even without the inspection and penalty.

## Causal Evidence Rating

The quality of the causal evidence presented in this study is low. This means we cannot be confident that the reductions in injury rates were caused by the OSHA inspections or penalties. To provide more convincing causal evidence that meets CLEAR criteria, the study could examine programmed inspections without splitting by whether the inspection resulted in a penalty. A comparison group created this way would consist of firms in the same industries that were essentially randomly selected for a programmed inspection. This would be a valid representation of what would have occurred in the treatment group in the absence of inspections.