A New Estimate of the Impact of OSHA Inspections on Manufacturing Injury Rates, 1998-2005

Citation

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Highlights

- The study's objective was to determine the effect of OSHA inspections on injuries in single-facility manufacturing firms in Pennsylvania between 1998 and 2005.
- The study used a regression model to compare the changes in workplace injuries of firms that had received particular types of inspections to those that had not received those types of inspections.
- The study found that inspections with penalties were associated with a statistically significantly decrease in injuries by an average of 19 to 24 percent annually in the two years after the inspection.
- The quality of the causal evidence presented in this study is low. This means we are not confident that the differences in workplace injuries between firms that received particular types of OSHA inspections and firms that did not receive those types of inspections are attributable to the inspections.

OSHA Enforcement Activities and Outcomes

The study examined the effect of OSHA inspections on injuries in single-facility manufacturing firms in Pennsylvania between 1998 and 2005. Several types of OSHA inspections were analyzed: programmed inspections that did and did not result in a penalty, complaint inspections that did and did not result in a penalty, and all inspections (including programmed and complaint) that did and did not result in a penalty. In general, programmed inspections were conducted at randomly selected worksites in high-injury industries, and complaint inspections were triggered by complaints filed by employees or their representatives. The study analyzed the effects of having an inspection by firm size and by the time period of the inspection (for example, whether the inspection occurred in the current year, the previous year, within the past two years, or within the past four years).

Features of the Study

The study used a regression model to compare the changes in workplace injuries of manufacturing firms that had received particular types of inspections to those that had not received those types of inspections. The model included controls for employment, industry, and year.

The authors used data from the Pennsylvania Workers' Compensation System, Pennsylvania Unemployment Insurance System, and OSHA Integrated Management System for 8,645 single-facility manufacturing establishments in Pennsylvania between 1998 and 2005.

Findings

- Inspections with penalties were associated with statistically significant decreases in injuries by an average of 19 to 24 percent annually in the two years after the inspection.
- Inspections without penalties within the previous two years had no statistically significant relationship to injuries.
- Inspections with penalties had no statistically significant relationship to injuries for workplaces with fewer than 20, or more than 250, employees.

Considerations for Interpreting the Findings

In this study, the estimated differences between firms in the changes in injury rates may not be caused by inspections with penalties. The differences in injury rates could reflect underlying differences in safety levels or other factors between the firms being compared. Penalties are assessed when an inspection uncovers OSHA violations; therefore, the firms that received a penalty may have had more egregious safety violations that management would have addressed, even without the inspection and penalty. Similarly, firms that receive inspections are likely less safe, on average, than those in which no inspection was conducted, because some inspections are triggered by an employee complaint of a workplace hazard. In the absence of inspections, firms with more hazards and safety violations may have experienced different changes in injury rates as conditions deteriorated or because management took actions to address unsafe working conditions.

Causal Evidence Rating

The quality of the causal evidence presented in this study is low. This means we are not confident that the differences in workplace injuries between firms that received particular types of OSHA inspections and firms that did not receive those types of inspections are attributable solely to the inspections. To provide more convincing causal evidence that meets CLEAR criteria, the study could have examined only firms that received inspections at random. This would give us confidence that the differences in outcomes between the firms that were inspected and those that were not was attributable to the inspection and not underlying safety or other factors at the firm.