An Assessment of OSHA's Recent Effects on Injury Rates

Citation

McCaffrey, D. (1983). An assessment of OSHA's recent effects on injury rates. *Journal of Human Resources*, *18*(1), 131-46.

Highlights

- The study's objective was to examine the effect of OSHA inspections on injury rates in manufacturing and construction firms from 1976 to 1978. Although OSHA no longer operates as it did during this period, this study provides historical context for changes that were later made to the program.
- The author used a regression model to compare the differences in injury rates of manufacturing and construction firms that received inspections in March and April ("early") with those that received inspections in November and December ("late").
- The study found that, relative to late OSHA inspections, early OSHA inspections were not associated with a statistically significantly reduction in injury rates within the year of inspection.
- The quality of causal evidence for some analyses presented in this study is moderate because the analyses used a well-conducted nonexperimental design. This means we have confidence that these findings provide some evidence that OSHA inspections had no effect on injury rates.

OSHA Enforcement Activities and Outcomes

The study examined the effect of OSHA inspections that occurred early in the year (March and April), relative to the effect of those that occurred late in the year (November and December), on injury rates in manufacturing and construction firms between 1976 and 1978. Although OSHA no longer operates as it did during this period, this study provides historical context for changes that were later made to the program.

Features of the Study

The study used a regression model to compare the difference in injury rates of firms that received inspections in March and April and those that received inspections in November and December. If inspections reduce injury rates, then firms inspected in the spring might have lower injury rates during the year compared to firms inspected in the fall. The model controlled for differences between the types of establishments that received inspections at different times of the year by including controls for injury rates in the prior year, employment, firm size, and industry. Regressions were estimated separately for each year of data.

The authors used data from the Bureau of Labor Statistics Annual Survey of Occupational Illnesses and Injuries for 1,990 firms in 1976; 1,846 firms in 1977; and 1,801 firms in 1978.

Findings

Relative to late OSHA inspections, early OSHA inspections were not associated with a statistically significant reduction in injury rates within the year of inspection.

Considerations for Interpreting the Findings

The author's estimation strategy required that firms inspected early and late in the year (and inspections occurring early and late in the year) were not systematically different, after controlling for the other variables used in the regression. This assumption was likely reasonable for inspections conducted in 1976 and 1977. However, in 1978 OSHA developed a new system for determining which firms to inspect in response to the Supreme Court's ruling on Marshall v. Barlow's Inc. As a result of the ruling, OSHA created a system for prioritizing inspections so that the ones more likely to be unsafe were inspected earlier in the year. This suggests that before 1978, firms inspected early and late in the year were likely not systematically different, while in 1978 and later years, we cannot be confident that firms inspected early and late in the year are comparable.

Even in the cases for which the comparisons were valid, the period of time over which effects in this study were estimated might not be long enough to detect differences in annual injury rates. Firms inspected in the spring would have had to make changes to reduce injury rates immediately following the inspection in order for their average injury rates in the inspection year to decline.

Causal Evidence Rating

Regressions using data from 1976 and 1977: The historical evidence indicates that plants inspected early in 1976 or 1977 were not systematically different from plants inspected later in those years. In addition, by controlling for industry, lagged injury rates, firm size, and changes in the number of employees, the authors accounted for important factors that could lead to changes in the injury rates. Thus, CLEAR rates the quality of causal evidence presented for the analyses of data from 1976 and 1977 as moderate because the analyses used a well-conducted nonexperimental design.

Regressions using data from 1978: The quality of causal evidence presented in this part of the study is low. Therefore, it is unclear whether the lack of statistically significant findings reflects a true lack of association between inspections and injury rates or is attributable to differences between the groups being compared. To provide more convincing causal evidence that meets CLEAR criteria, the study could have, for example, demonstrated that the regulatory change occurring in 1978 had no impact on how firms were selected for inspection and how inspections were conducted.