

Citation

Bartel, A., & Thomas, L. (1985). Direct and indirect effects of regulation: A new look at OSHA's impact. *Journal of Law and Economics*, 28(1), 1–25.

Highlights

- The study's objective was to determine the effect of Occupational Safety & Health Administration (OSHA) inspections on noncompliance with OSHA standards and the effect of noncompliance on lost-workday injuries in the 1970s. Although OSHA no longer operates as it did during that period, this study provides historical context for later changes made to the program.
- The study used a structural model to examine differences in the injury rates and noncompliance for industries that received higher rates of OSHA inspections.
- The study did not find a statistically significant relationship between noncompliance with OSHA standards and workplace injuries
- The quality of the causal evidence presented in this study is low. This means we are not confident that the differences in injury rates among industries with higher rates of noncompliance are attributable solely to noncompliance or that differences in noncompliance rates among industries with higher rates of inspections are attributable to inspections.

OSHA Enforcement Activities and Outcomes

The study examined the effect of OSHA inspections on noncompliance with OSHA standards and the effect of noncompliance on lost-workday injuries. Noncompliance was measured by penalties per inspection per worker. The study attempted to distinguish between two competing hypotheses to explain why previous studies had failed to find any discernible impacts of OSHA activities on injury rates: (1) the noncompliance hypothesis, which proposed that OSHA cannot compel firms to comply with its standards because of limited statutory and budgetary authority from Congress; and (2) the inefficiency hypothesis, which proposed that OSHA does not affect accidents because it regulates only capital, and accidents are caused by complex interactions in the workplace environment.

This study examined OSHA activities in the 1970s. Although OSHA no longer operates as it did during this period, this study provides historical context for later changes made to the program.

Features of the Study

The study used a structural model to examine differences in the injury rates and noncompliance for industries that received higher rates of OSHA inspections. The model accounted for the simultaneous determination of injury rates, noncompliance, and inspections by using industry characteristics as instrumental variables for these outcomes.

The authors used injury data from a special data set tabulated by the Bureau of Labor Statistics, inspections data from the OSHA Management Information System, and several sources of data for the control variables. The sample included manufacturing industries in the 22 states where OSHA was federally administered from 1974 to 1978.

Findings

- The study did not find a statistically significant relationship between noncompliance and workplace injuries.
- Industries with higher OSHA inspection rates had statistically significantly lower rates of noncompliance with OSHA standards.
- These findings support the inefficiency hypothesis and provide evidence against the noncompliance hypothesis.

Considerations for Interpreting the Findings

To provide plausibly causal effects, an instrumental variables approach must use instruments that influence only the outcome of interest through their effect on the variables for which they are instruments. The instrumental variables used in the study do not satisfy this condition. For example, the authors used workers' education as an instrument for injuries when estimating the impact of injuries on noncompliance, but workers' education could directly affect noncompliance if better-educated workers were better able to implement safety standards. Similarly, the authors used indicators for the type of industry (for example, primary metals or paper mills) as instruments for noncompliance in regressions predicting inspections, but industry type could affect whether firms are inspected (because high-injury industries are targeted) and whether workers are injured (because some industries are inherently more dangerous than others). Because of the direct linkages between the instruments and the outcome variables, the instrumental variables approach in this study does not provide causal estimates.

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 injury rates between industries with higher rates of noncompliance are attributable to noncompliance or that differences in noncompliance rates between industries with higher rates of inspections are attributable to inspections. To provide more convincing causal evidence that meets CLEAR criteria, the study would have needed to use instrumental variables that influenced the probability of inspection but were not otherwise related to injury rates.