

Citation

Gray, W. & Jones, C. (1991). Longitudinal patterns of compliance with Occupational Safety and Health Administration health and safety regulations in the manufacturing sector. *Journal of Human Resources*, 26(4), 624–653.

Highlights

- The study's objective was to examine the effect of past Occupational Safety & Health Administration (OSHA) inspections on the number of violations found in subsequent inspections.
- The study used a regression model to compare the number of hazards found at the first, second, and higher-order inspections conducted by OSHA from 1972 to 1983. Although OSHA no longer operates as it did during the period of this study, the study provides interesting historical context.
- The study found that the number of workplace hazards cited decreased with each additional inspection. The largest drop occurred from the first to the second inspections.
- The quality of causal evidence presented in this study is moderate because the study used a well-implemented nonexperimental design. This means we have confidence that the effects estimated in this study are attributable at least in part to OSHA inspections. However, as with any nonexperimental design, other factors not accounted for in the study could also have contributed to the estimated effects.

OSHA Enforcement Activities and Outcomes

OSHA no longer operates as it did during the period of this study. Nevertheless, the study provides interesting historical context. At the time of this study, OSHA inspections were conducted for four reasons: as part of a general schedule of inspections targeted to high-hazard firms; if a complaint had been filed by employees or their representatives; if there had been an injury or fatality; or as a follow-up to a previous inspection. Complaint and follow-up inspections were generally less intensive than general inspections. An inspector could issue citations for violations of safety standards observed during the inspection. Depending on the nature of the violation(s), the inspector might also issue a monetary penalty. Those firms with more violations were more likely to receive subsequent inspections to determine whether the violations had been corrected.

The outcome of interest to the study was the number of hazards identified at later OSHA inspections of the same firm.

Features of the Study

The authors estimated regression models to compare the number of hazards found at the first, second, and higher-order inspections conducted by OSHA from 1972 to 1983. These models included firm-fixed effects, which controlled for non-time-varying differences across firms that could influence both their

compliance behavior and the probability of being reinspected. The model also included year-fixed effects, which controlled for time-varying inspection behaviors that were the same across all firms. The model also controlled for the type of inspection (general, complaint, accident, or follow-up).

The authors used data from OSHA's Integrated Management Information System for 115,236 firms in federal OSHA states with two or more inspections from 1972 to 1983. The data set contained 299,295 observations, each representing an inspection.

Findings

- The study found that the number of hazards identified decreased sharply from the first to the second inspection.
- The average plant inspected two or more times from 1972 to 1983 experienced a reduction in citations of 3.1 to 2.5.

Considerations for Interpreting the Findings

The authors' empirical strategy relied on comparing the changes in the number of hazards identified from one inspection to the next within the same firm. They also included year-fixed effects, which controlled for common trends in inspection behaviors occurring in all firms over the period of study. Given that inspections occurred for different reasons, the authors also included controls for the type of inspection. The empirical approach and carefully selected set of control variables employed in the analysis give us confidence that the authors attempted to account for the likely sources of bias. In other words, conditional on the control variables, there is little reason to believe that inspections with different sequence numbers differ in any systematic way within the same firm.

Causal Evidence Rating

The quality of causal evidence presented in this study is moderate because the study used a well-implemented nonexperimental design. This means we have confidence that the effects estimated in this study are attributable at least in part to OSHA inspections. However, as with any nonexperimental design, other factors not accounted for in the study could also have contributed to the estimated effects.