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THIRD PARTY CERTIFICATION AND THE EFFECTIVENESS OF VOLUNTARY POLLUTION ABATEMENT PROGRAMS: EVIDENCE FROM RESPONSIBLE CARE

Abstract:

Industry self-regulation via voluntary pollution abatement has become popular not only with industry groups but also with environmental policymakers because it gives them a relatively easy to use lever that does not require an act of Congress. There is a substantial academic debate on the effectiveness of such programs, with some authors arguing that these programs are quite effective in reducing pollution (e.g., Khanna and Damon 1999, Bi and Khanna 2012) while others argue, and with equal conviction, that these programs are ineffective at best (Gamper-Rabindran 2006, Vidovic and Khanna 2007, 2012, Carrión-Flores et al. 2013) and counter-productive at worst (King and Lennox 2000, Gamper-Rabindran and Finger 2013).

We contribute to the literature by using the recent structural changes in the Responsible Care (RC) program to assess whether the introduction of independent third party certification from 2005 onwards has yielded lower emissions from RC plants compared to statistically equivalent non-RC plants in the US chemical industry. We use a difference-in-difference model to estimate the average treatment effect of third party certification by comparing RC plants before and after third party certification was introduced to other plants in the US chemical industry between 1996 and 2010 who were not members of RC and were therefore not subject to third party certification.

Using an unbalanced panel of 12,999 observations from 935 facilities in the US chemical manufacturing industry, we find some evidence of a negative average treatment effect of third party certification: the introduction of third party certification led to a decline in emissions from RC plants compared to non-RC plants. We use a semi-parametric model to explore plant-level heterogeneity in the treatment effect and to verify the robustness of our parametric difference-in-difference model. The results imply there is facility-level heterogeneity in the average treatment effect: the significantly negative treatment effect is associated with the largest polluters whereas smaller facilities have either an insignificant or significantly positive treatment effect. Nonetheless, emissions from RC plants are always higher than emissions from non-RC plants, and while the emissions from both RC and non-RC plants are declining over the time period we study, the introduction of third party certification in 2005 did not result in a statistical change in the decline rate of emissions from RC plants compared to non-RC plants.

Our results stand up to various sensitivity analyses, including self-selection into RC by parent firms.

Keywords:

Self-regulation, certification, difference-in-difference, semi-parametric model, heterogeneity, American Chemistry Council

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