The Value of Regulatory Discretion: Estimates from Environmental Inspections in India

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Sector(s): Environment & Energy, Political Economy and Governance

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Location: Gujarat, India

Sample: 960 industrial plants

Target group: Large enterprises

Outcome of interest: Pollution Transparency and accountability Climate change mitigation

Intervention type: Audits Targeting Regulation enforcement programs

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Partner organization(s): Evidence for Policy Design (EPoD), Government of India, State of Gujarat Pollution Control Board (GPCB), Harvard University Sustainability Science Program (SSP), MIT Center for Energy and Environmental Policy Research (CEEPR), International Initiative for Impact Evaluation (3ie), International Growth Center (IGC), National Science Foundation (NSF), Harvard Environmental Economics Program

Researchers are evaluating the impact of making environmental inspections of high-polluting industrial plants more frequent and removing regulator discretion in selecting plants for inspection on regulatory compliance and pollution emissions in Gujarat, India.

Policy issue

There is a clear tension between rules and discretion in regulation design. On the one hand, there is a need to standardize regulators' behavior so they are not tempted to act in accordance with their personal goals rather than the policy. However, there is also a need for flexibility in enforcing policies as regulators often operate without full knowledge of firm compliance or sufficient resources to penalize all violators. One area where this tension is present is the enforcement of pollution limits for industrial plants using periodic inspections. When regulators have discretion in choosing which plants to inspect or do not have enough resources to inspect all plants, they may inspect less frequently than is prescribed by law, which could enable firms to pollute more without the threat of being monitored or penalized. On the other hand, discretion may be beneficial in that it could allow the regulator to target penalties to the most extreme polluters. In this evaluation, researchers investigated the impact of increasing the frequency of environmental inspections of high-polluting industrial firms and removing regulator discretion in

selecting which firms to inspect on regulator punishments, firms' compliance, and pollution levels.

Context of the evaluation

Many areas of India are severely polluted despite powerful regulatory agencies and stringent environmental regulations. In the state of Gujarat, there are strict regulations that lay out maximums on the concentration of pollution and on the minimum inspection processes required to enforce these standards. Additionally, national laws give regulators the power to close highly-polluting plants, turn off their utilities, or force them to install abatement equipment. Yet the number of polluting firms typically exceeds the capacity of a small number of qualified inspectors. Due to these resource constraints, regulators have often used considerable discretion in deciding whom to inspect and pursue, and when to apply costly punishments.



Technician inspecting a power plant, India.

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Details of the intervention

Researchers partnered with the Gujarat Pollution Control Board (GPCB) to raise the frequency of environmental inspections to the prescribed minimum for a randomly selected group within a sample of 960 high-polluting firms in three districts in Gujarat: Ahmedabad, Surat, and Valsad.

Within the sample of 960 firms, 481 were randomly assigned to the inspection treatment group and 479 were assigned to the comparison group. The inspection treatment had two components. First, it provided the resources necessary to bring the treatment group up to the minimum level of inspections as set by India's Ministry of Environment and Forests and the GPCB. It

guaranteed at least one annual inspection per firm in the first quarter of the year, and had a 0.66 probability of a another inspection in each of the following three quarters. Second, it removed the ability of the regulator to choose which firms to inspect by requiring that the added inspections were allocated randomly across all plants in the treatment group.

GPCB teams, composed of an environmental engineer and scientist, conducted the inspections. The treatment more than doubled the number of inspections conducted relative to the comparison group. A month before the end of the intervention, some firms were also randomly assigned to receive letters from the GPCB reminding them of their obligation to meet emissions limits.

Results and policy lessons

Results forthcoming.

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