Escalation of Scrutiny: The Gains from Dynamic Enforcement of Environmental Regulations

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Abstract

In the United States, federal and state governments spent nearly \$21 billion in 2014 on the enforcement of environmental regulations and laws, including the Clean Air Act and Amendments and the Clean Water Act. The Environmental Protection Agency uses a dynamic approach to enforcement, including by designating repeat offenders as *high priority violators* and targeting them with elevated scrutiny and penalties, which may allow it to mitigate the costs of enforcement and improve compliance. We estimate the value of the dynamic monitoring and enforcement to ensure compliance with air pollution standards. We develop and estimate a single-agent, dynamic, discrete-time model of a plant faced with a regulator. The central decision that a plant faces is whether and when to invest in pollution abatement technologies. The regulator enforces environmental laws with three principal actions: inspections, recording of violations, and fines. Plants face a disutility from investment and from regulatory enforcement. We use a fixed grid approach to estimate specifications where the disutility parameters are heterogeneous across plants. We estimate that investment and the designation as a high-priority violator are both very costly to plants. Reductions in the non-linearity of fines would have big adverse impacts on the fraction of high-priority violators.

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