



Smoke and Mirrors: Did China's Environmental Crackdowns Lead to Persistent Changes in Polluting Firm Behavior?

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From 2015-2018, the Chinese national government implemented a series of short-lived crackdowns on pollution, rotating through different Chinese provinces and cities, intensifying enforcement and encouraging public input to identifying polluters. The pace for local enforcers was demanding, with long workdays as thousands of complaints were filed and resolved. One local official is believed to have died of overwork.

In Monday's energy policy seminar, Valarie Karplus, Assistant Professor of Global Economics and Management at the MIT Sloan School of Management, used this rotating government program as an opportunity to better understand "on the ground implementation" challenges for policy in China. Specifically, Karplus and her co-author, graduate student Mandy Wu, analyzed data in order to assess the impacts of these short term interventions on air pollution, and to identify what the results suggest for the relationships between different tiers of government and the behavior of state-owned firms accountable to them within the Chinese economy.

Karplus and Wu gathered weekly data on SO₂ pollution around coal power plants in targeted cities before, during, and after enforcement pushes in those cities. Coal plants are the major source of SO₂ emissions, so the data collected measured the impact of environmental crackdowns on coal plant behavior—specifically, on how likely coal plants were to use their already installed "scrubbing" technology—technology that is not always operated, because it makes plants cleaner but also increases operating costs.



The data collected showed that the enforcement intervention by the central government did have an impact—SO₂ concentrations declined by approximately 30%, compared to cities not undergoing enforcement efforts—but emissions bounced back up fairly quickly after periods of special enforcement ended, especially in the case of firms that outranked the city government. Firms that were the subjects of public complaints showed especially sharp SO₂ reductions during the enforcement period, but a similar bounceback to pre-enforcement levels once the enforcement period ended, Karplus reported.

This pattern, Karplus said, suggests that firms cleaned up only when the threat of enforcement was highest. The short-lived results of the enforcement "crackdown" driven by the central government Karplus said, seems to reveal a dynamic in which the central government acts a bit like a school principal. Students (local government agencies and firms) improve their behavior when the principal is watching, but go back to their old ways as soon as the principal leaves the room—lax enforcement of pollution laws which may help bolster the economic growth for which local government officials are primarily rewarded. Karplus referred to this as the "collusion" hypothesis. This dynamic may be reinforced by the fact that, even with the best of intentions, local government officials may have little real control over state-owned firms that outrank them within China's government-industry hierarchy.

Karplus spoke as part of the Kennedy School's Energy Policy Seminar Series, which is sponsored by the Consortium for Energy Policy Research of the Mossavar-Rahmani Center on Business and Government and by the Belfer Center for Science and International Affairs.