

Evolution & Efficacy of Policy Instruments

Harvard Workshop on the Economics of the Clean Air Act

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The Clean Air Act turns 50!



President Nixon signs the Clean Air Act of 1970

- Not your (economics) textbook response to a pollution externality...
- A complex maze of overlapping provisions, rules, and regulatory processes.
- The CAA and amendments serve as an impactful and durable regulatory framework.

CAA(A) designed to tackle hard pollution problems :

- Persist over the long-term
- Complicated, dynamic, uncertainty about costs and benefits.
- Implicate thousands/millions of sources with private information.
- Highly politicized

The efficacy of policy responses to these complex problems can be measured along multiple dimensions...

Flexibility!

- The 1990 amendments launched national and regional emissions trading programs which give regulated entities flexibility in how/when/where emissions reductions occur.
- In theory, this flexibility affords clear efficiency advantages over more rigid and prescriptive approaches.
- Empirical research has documented how market-based regulation has lowered the costs of meeting emissions reduction targets (see, for example, Chan et al. 2018; Linn, 2008; Schmalensee and Stavins, 2013; Fowlie et al. 2012).

This flexibility has its limits...



- When refiners were given flexibility in choosing which VOCs to remove from gasoline, they chose the least expensive (and least harmful) option (Auffhammer and Kellogg, 2011).
- When power plants had flexibility over where to invest in SO_2 abatement, permits flowed into more densely populated areas, increasing health impacts of permitted pollution relative to autarky. (Chan et al. 2018)
- EPA's (failed) mercury cap-and-trade program sparked intense concerns about toxic hotspots and *too much* compliance flexibility.

Acid Rain Program

- Acid rain is no longer a big problem (a success story!)
- An elevated appreciation for the role of SO_2 in $PM_{2.5}$ formation inspired attempts to re-purpose the ARP (2002 Clean Skies Initiative).
- EPA required new statutory authorization to modify the program - but this effort failed.

Lesson learned?

“Congress’s failure to expand EPA’s delegated authority under Title IV coupled with actions of state regulators and courts limited the Agency’s scope to update market-based policies in response to new information..”

— Eric Patashnik in ‘Lessons from the Clean Air Act’

California's RECLAIM Program

- The 1990 CAA amendments required areas in extreme ozone non-attainment to implement “economic incentive programs” for ozone precursors.
- LA basin implemented a NO_x trading program for stationary sources.
- In recent years, excess supply → weak abatement incentives.
- Industry fights proposals to restrict permit supply.
- In 2017, board agrees to sunset the RECLAIM program and replace it with a command-and-control system.

Lesson learned? Difficult to strike a balance between updating programs to adapt/improve efficacy and maintaining stability/confidence in the process.

NO_x trading programs

- The CAA good neighbor provision has played a critical role in coordinating regional NO_x trading programs.
- In 2008, the courts ruled that NO_x emissions trading failed to adequately accommodate spatial transport of pollution (and the associated variation in damages across regulated sources).
- In 2015, “air quality-assured” interstate emission trading under CSAPR limited trading to “ensure that no state’s emissions . . . exceed that specific state’s budget plus a variability limit.”

Flexibility/targeting trade off: Can market-based policies do more to leverage innovations in local/regional air quality measurement?

84

completed

20

in progress

104

total rollbacks

The Trump Administration Is Reversing More Than 100 Environmental Rules.

Source: New York Times

- The Clean Air Act has taken a beating. But it endures...
- With a narrow majority in the Senate, Congress has a narrow window of opportunity.
- Environmental policy initiative/reform should be flexible, adaptable, and responsive to concerns about inequities in exposure.