Monitoring and Enforcement: Lessons from Environmental, Health, Safety, and Tax Compliance

August 7, 2013

Jay P. Shimshack

Tulane University, Department of Economics

What do we know about monitoring and enforcement?

- This presentation is based on my own subjective assessment of literature drawn from four research areas:
  - Environmental, Health, Safety, and Tax Compliance
- I draw lessons from three main types of studies:
  - Theoretical, Experimental, and Empirical
- Some caveats:
  - My own research emphasizes empirical analysis, so I will almost certainly draw more extensively from this type of research.
  - I will focus on lessons from the US policy environment. Lessons from international contexts, and especially LDC contexts, differ.
  - I will emphasize insights from quantitative studies that attempt to assign causal attribution.

What do we know? The big picture

- The basic insights of the Becker (1968) “economics of crime” model explain *a lot* of real world behavior.
  - In this model, regulated entities weigh the expected benefits of a violation with the expected penalties of a violation.
  - Expected penalties are a function of p and F.
- Within this framework, actions achieve policy objectives:
  - A direct reduction in the penalized harm itself.
  - A specific deterrence effect.
  - A general deterrence effect.
  - A beyond compliance effect.
- All of these deterrence effects are observed in diverse settings, including settings where compliance is high.

→ Traditional monitoring and enforcement actions get results.

The economics of crime model: More nuanced results

- Regulated entities tend to misperceive the probability of inspection, typically thinking it is higher than it actually is.
- While greater inspection frequencies lead to greater compliance, they typically do so at a diminishing rate.

⟶ Mandatory inspection frequencies should not always be publicized,
& more inspections are not always more cost effective than fewer inspections.

- Informal enforcement actions without “teeth” generally have little to no impact on compliance outcomes.
- In contrast, formal enforcement actions lead to greater compliance.
- While higher formal penalties enhance compliance, they typically do so at a (rapidly) diminishing rate.

→ Formal enforcement actions are essential, but more frequent formal penalties may generate more overall deterrence than a few large penalties.

Going Beyond the Basic Model

- It is difficult to explain the high levels of compliance observed in many real world regulatory settings using the simplest “economics of crime” model alone.
  - In many settings, effective p and F are simply too low.
- So, what else motivates compliance & pro-social behavior?
  - Non-regulatory incentives, including input market pressures (investors, employees), output market pressures (consumers, B2B customers), & activist pressures (community organizations)
  - Compliance Assistance & Reductions in Regulatory Complexity
  - Behavioral & Psychology Factors, including Social Norms and Perceptions of “Fairness”

Going Beyond the Basic Model

→ Noncompliance and penalties should be well publicized.

- The spillover effects underlying general deterrence require that other regulated entities know about enforcement actions in their industry or area.
- Also, the evidence suggests that transparency that leverages non-regulatory pressures can be highly effective. Consumer and community organization forces are especially influential channels.

→ However, publicizing good behavior as the norm - and "the right thing to do" - is also important.

- Social customs importantly influence compliance. Perceptions that noncompliance is the norm can lead to high levels of noncompliance.

→ Regulations and penalty determinations should be clear, standardized, supported with services, and evenly applied.

- Compliance is enhanced when facilities perceive that regulators are fair and themselves trying to promote compliance, when facilities feel that they get something in return for good behavior, and when facilities perceive that regulators apply rules equitably across facilities..

Other issues: Inspection targeting

- Targeting, when based on factors correlated with historical propensities to violate, can enhance the efficiency of monitoring and enforcement regimes.
- This includes popular “Dynamic targeting” regimes that combine multi-period rewards for good behavior with multi-period threats for bad behavior.
- However, over-utilization of targeting can cannibalize core monitoring activities. Here, many facilities that can easily and inexpensively comply may to fail to do so.
- Spillover effects of enforcement are maximized when randomness across space and time plays a key role.

→ Inspection targeting can improve regulatory efficiency, but too much targeting may degrade effectiveness.

Other Issues: Self-monitoring

- Regulators often rely on self-reporting, where entities disclose their own behavior to enforcement agencies.
- Theory suggests that self-reporting can generate truthful disclosure and produce efficient regulatory outcomes if the sanctions for intentional misreporting are *far* greater than sanctions for other forms of noncompliance.
- And, while emerging experimental and empirical evidence suggests that some strategic misreporting should be expected in the real world …. reasonably accurate self-reporting on a large-scale is often observed.

→ It is possible to design and implement regulatory system that create conditions for effective self-monitoring.

Other Issues: Prevention Activities

- The literature exploring impacts of management systems and prevention activities has generated mixed results.
- Some studies find these programs generate benefits. However, many studies find they do not.
  - To be fair, much of the existing related literature focuses on the impact of *voluntary* – rather than mandatory - adoption of management systems and prevention activities.
  - However, a persistent short-coming is that prevention activities are process-oriented; they do not ensure performance outcomes.
  - Some studies even find that emphasizing prevention programs can backfire. Facilities may promote the *perception* of beneficial activity while intentionally, or unintentionally, masking falling true performance.

→ Prevention activities as a primary regulatory strategy should be implemented with caution.

Other issues: Federalism vs. Decentralization

- Existing regulations with decentralized M & E are typically characterized by large spatial variability.
- Inspection frequencies, sanction probabilities, & fine distributions vary significantly across states and regions.
- Decentralization offers both potential benefits and costs.
  - Potential benefits include fewer information asymmetries (i.e. better regulatory information), and monitoring and enforcement that is more tailored to local circumstances (i.e. facility composition, etc.)
  - Potential costs include regulatory capture, a “race to the bottom,” cross-state spillovers, and failures to capture economies of scale in M&E.

→ Enhanced partnerships may be expected to lead to greater heterogeneity in monitoring and enforcement. The welfare impacts of such heterogeneity are ambiguous.

The upshot?

- An awful lot of observed variation in observed real world compliance can be attributed to traditional economic incentives resulting from traditional M&E programs.
- Regulatory innovations that use information and transparency, prevention activities, cooperative partnerships, and non-regulatory pressures as *complements* to traditional M&E can be effective.
- Regulatory innovations that use information and transparency, prevention activities, cooperative partnerships, and non-regulatory pressures as *substitutes* to traditional M&E should not necessarily be expected to be effective.

Where might researchers direct future efforts?

- The deterrence impacts of M&E vary across industries, facility characteristics, and time. We don’t yet fully understand what systematically drives this response heterogeneity.
- We also have a very poor understanding of social costs of M&E in the real world.
  - These costs include both regulator implementation costs & plant compliance costs.
  - Understanding costs is essential for BC and CE analyses.
- We don’t necessarily know how well the above general results apply to food safety!

Selected Surveys

- Cohen, M. (1998). Monitoring and Enforcement of Environmental Policy.*International Yearbook of Environmental and Resource Economics*, *3*.
- Andreoni, J., Erard, B., & Feinstein, J. (1998). Tax compliance. *Journal of economic literature*, *36*(2), 818-860.
- Polinsky, A. M., & Shavell, S. (2000). The Economic Theory of Public Enforcement of Law. *Journal of Economic Literature*, *38*, 45-76.
- Koehler, D. A. (2007). The effectiveness of voluntary environmental programs—A policy at a crossroads?. *Policy Studies Journal*, *35*(4), 689-722.
- Gray, W. B., & Shimshack, J. P. (2011). The effectiveness of environmental monitoring and enforcement: A review of the empirical evidence. *Review of Environmental Economics and Policy*, *5*(1), 3-24.
- Alm, J. (2012). Measuring, explaining, and controlling tax evasion: lessons from theory, experiments, and field studies. *International Tax and Public Finance*,*19*(1), 54-77.
- Kitzmueller, M., & Shimshack, J. (2012). Economic perspectives on corporate social responsibility. *Journal of Economic Literature*, *50*(1), 51-84.