

-Summary of Remarks-

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Compliance and Deterrence in Environmental and Natural Resource Contexts

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Under-Secretary Lubchenco, NOAA staff members, and interested stakeholders, thank you for the opportunity to participate in this event. While all regulatory contexts are unique in some respects, my goal for this talk is to summarize the potentially generalizable aspects of the state of knowledge regarding compliance and deterrence in environmental and natural resource contexts.

So what do we know about enforcement in environmental and resource contexts? Let me begin with the simplest stylized facts. First, enforcement actions get results. Enforcement actions enhance specific deterrence, meaning that they reduce future violations by the sanctioned entity. Enforcement actions enhance general deterrence, meaning that they spill over to reduce future violations by entities other than the sanctioned entity alone. And enforcement actions enhance beyond compliance behavior, meaning that they encourage extra cautionary measures by entities concerned about even the possibility of an accidental violation.

We also know that monetary penalties achieve greater deterrence than less formal types of sanctions. In most studied contexts, warnings and informal enforcement actions do not generally enhance compliance in any significant manner. In contrast, the evidence suggests that even modest fines substantially affect behavior.

Deterrence tends to increase with the size of the monetary penalty. While small fines contribute to compliance incentives, bigger penalties reduce more violations by both the sanctioned entity and other regulated entities. It is worth noting that fines at least as large as the *incremental* economic benefits of violating are likely to achieve a particularly large deterrence effect.

A final stylized fact is that administrative and civil penalties influence compliance. There is some evidence that, all else equal, criminal sanctions (which may include incarceration) enhance deterrence more than civil and administrative actions. However, administrative and civil actions generate substantial deterrence outcomes themselves, and they may motivate compliance with more modest regulatory costs and lower standards for proof than criminal actions.

What are the implications of these stylized facts? First, deterrence can be measured. We know that enforcement gets results because researchers and policy analysts have measured deterrence effects. Both qualitative survey techniques and quantitative database techniques exist for assessing the effectiveness and cost effectiveness of enforcement instruments and enforcement strategies. While the details of these specific measurement approaches are beyond the scope of this brief talk, the point is these tools can and should be used to understand deterrence and assist enforcement management. Anecdotal evidence and small-n case studies can be highly misleading and should be avoided. Note also that the obvious starting point for measuring and understanding deterrence is improved information systems and improved dissemination of enforcement information.

The stylized facts also suggest that enforcement actions should be publicized. An important part of enforcement effectiveness is general deterrence, where actions spill over to influence the behavior of even those that were not penalized. But these spillover effects require that others know about enforcement actions in their area. One side benefit of improved publicity is greater public transparency. An additional side benefit is that the regulated community may understand regulations and violations more completely.

A final implication of the stylized facts is that overall resource protection may be greater with a reallocation of NOAA resources away from criminal enforcement and towards administrative and civil enforcement. Criminal enforcement is effective when available, but it is costly relative to alternatives. It is also often inapplicable or impractical for many types of violations, even though these violations may markedly influence average resource quality.

What else can be learned from the scholarly literature? First, as long as regulatory context, regulations, and regulated entities differ across geographic regions and over time, penalties should not be equalized across regions and through time. In short, while the *process* for determining the likelihood and size of penalties can be increasingly standardized and increasingly transparent, actually implemented penalties should not be standardized. If the private benefits and costs of compliance, or the public benefits and costs of violation, differ across regulatory settings, then enforcement itself should differ across regulatory settings as well.

A similar insight is that penalties should likely increase in the number of offenses. However, regulators should be cognizant of the trade-offs inherent in this strategy. Infrequent or first time violators may be out of compliance largely for accidental reasons, and small sanctions may prevent their violations from reoccurring. In contrast, repeat offenders have clearly signaled that current expected penalties are not high enough to influence their behavior, so increased expected threats are necessary to induce compliance. This is fairly intuitive, but there is some emerging evidence that environmental and resource agencies allocate too much of their limited resources towards priority violators and priority violations. Some regular penalties for less egregious violations may help encourage compliance for low-level violations that are easily preventable. In other words, some penalties for less egregious violations may produce a large regulatory “bang per buck.”

Let me conclude with two additional comments. First, it is my understanding that this summit was motivated in part by concerns about overly aggressive enforcement. It may well be the case that some violations of fisheries or related laws may generate greater public benefits to fishers and consumers than they generate in public harm via resource damages. From a strictly economic standpoint, allowing these types of violations may be socially desirable. However, even in these cases, addressing related concerns motivates an examination of possibly inefficient or inappropriate *regulation*. Addressing these concerns does not necessarily motivate an examination of inefficient or inappropriate *enforcement*.

Second, it is my understanding that this summit was motivated in part by concerns about penalty retention by enforcement agencies themselves. This subject has not been examined in the closely related literature, so I have no particular insights. However, it may be worth noting that many other environmental and resource agencies allocate collected penalties to general government funds, general agency funds, or specific earmarked projects. These actions may mitigate the appearance of inappropriate incentives among enforcement officials.

Thank you.

Biographical Sketch

Jay Shimshack is Assistant Professor of Economics at Tulane University. He was previously affiliated with the University of Michigan, Tufts University, and the University of California – Santa Barbara. He holds a Ph.D. in agricultural and resource economics from the University of California, Berkeley (2002) and a B.S. in business marketing and management from Cornell University (1995). His major fields are environmental economics, applied microeconomics, public policy, and applied statistics. Dr. Shimshack's specific research interests include the monitoring and enforcement of environmental laws, corporate environmental performance, transparency policies and information advisories, and environmental health. He has published several articles in academic journals and his scholarship has been honored with national awards.

Shimshack has conducted research on enforcement and compliance for over a decade, and he has contracted with the US EPA and testified to the US House of Representatives about the state of science related to environmental enforcement and monitoring.