

Review of “The role of management actions in compliance with an environmental conservation regulation: Do monetary fines and notification programs influence regulatory compliance rates?”

JPAM

December 4, 2012

This is a paper and dataset with a huge amount of potential, but a potential that is unrealized in the current form. The theoretical issue of regulatory compliance of course continues to be an important topic of research. This project has a very unique way of looking at compliance data that is better than most other environmental policy programs, including before and after analysis. They have an opportunistic research design that allows them to persuasively differentiate the effects of four different types of management programs. Furthermore it addresses the substantively interesting issue of maritime collisions, which is nice to see in a general audience policy journal. However, they are missing a huge opportunity for a more sophisticated empirical analysis, which I think is necessary to publish the paper in JPAM. I list my recommendations about theory, substance, and methods below.

On the theoretical side, I like how they set up the different frameworks on compliance in the beginning, talking about voluntary compliance versus deterrence theory. Although the current conclusion of the paper does return to the different theoretical perspective on compliance, the bottom line theoretical implication could be stated more strongly. More importantly, they don't really talk about the idea of “quasi-voluntary” compliance (see work by Scholz, and Levi) or “pragmatic enforcement” (see work by Richard Waterman). The “first camp” mentioned by the authors seems to be about voluntary compliance, where regulators provide “assistance and incentives”. But quasi-voluntary compliance means that while most of the regulated community wants to comply, there are a few bad apples or repeat offenders that must be subject to violations and create a credible threat of enforcement to others. The authors refer to this in the conclusion but don't pay enough attention to it in the set up.

The concept of “pragmatic enforcement” is closely linked because not all non-compliance is punished with the highest level of enforcement, due to resource constraints on the agencies, along with the potentially inefficient use of resources if full enforcement is not needed to move a community to compliance. In fact, if you look at the Clean Air Act and Clean Water Act (and probably all enviro regulation), the empirical patterns is very few instances of full enforcement relative to the number of more informal notifications and letters. This appears to be the exact pattern in the vessel speed case reported here. And this strategy of pragmatic enforcement makes some sense if most of the regulated community is using a quasi-voluntary compliance strategy. So the current conclusion probably too strongly supports deterrence theory per se, although I think the authors are probably sympathetic with the quasi-voluntary compliance idea.

Some additional details would be useful in the discussion of the individual management programs starting around p.9. What is primarily needed is a clarification of how different management actions are translated into the decision-making of individual vessel operators. For example, the COPPS letters are sent to the shipping company, but does this info reach the individual vessels? On the monthly summaries, was there some section of the report that analyzed non-compliance to make it easy to pick out from the larger body of data, and then report to individual vessels. On the NOVAS, was there some rationale or threshold for deciding which among potentially many serious offenders were targeted?

My biggest criticism is on the methods, which rest primarily on a descriptive analysis of the before-after compliance statistics with various types of programs. One easy issue to deal with is a better description of how they aggregated across vessels and trips to compute the before-after compliance rates. But

more fundamentally, where is the multivariate analysis? They appear to have a massive and high quality data base where the unit of analysis is the vessel-trip. A number of different types of multivariate models might be used to predict compliance levels as a function management action received, type of ship, size of ship, length of trip, and other variables they might have in the database including which of the regions the trip was recorded in. They can control for a lot of unobserved effects using random-intercept models for each individual ship. At the very least this would provide a more precise quantitative prediction of the effectiveness of the different management methods. But it might also help isolate portions of the community that were more or less affected by the different management actions. I don't know enough about the dataset to give more specific recommendations at the moment about exactly which models to experiment with, but this is something the authors need to figure out before I think this paper deserves publication in JPAM. This is a great dataset and interesting policy issue—they need to maximize its value. I don't know if the authors have this type of analytical expertise or not, but they should be able to find someone to help!