

Referee Report on “Getting Polluters to Tell the Truth” #17101
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Summary. The author analyzes a model in which a regulator with incomplete information about firms’ losses from pollution abatement $c_j^i(x)$ tries to implement a standard that minimizes total social cost, where total social cost equals the harm from pollution plus firms’ lost profit from abatement activities. The authors shows that, under two assumptions—

1. In each of m industries, indexed by i , all firms have identical losses from abatement $c_j^i(x)$.
2. The regulator can, with probability $\varepsilon > 0$, conduct an audit which reveals whether the firm made a truthful announcement of $c_j^i(x)$.

the regulator can elicit truthful revelation of costs in the unique Nash equilibrium of a mechanism and obtain the first best.

Realism of Assumption 1. It is doubtful we live in a first-best world, especially with respect to environmental regulation, and so the reader might reasonably be initially suspicious of a result stating the first best can be obtained in all cases, including cases of practical relevance. Further thought about assumptions 1 and 2 confirms this initial suspicion. The assumptions do not seem realistic to me. Assumption 1 requires that all firms share the same $c_j^i(x)$. But $c_j^i(x)$ equals the profit $\pi_j^i(\infty)$ from unlimited pollution minus the profit $\pi_j^i(x)$ from pollution abated to x . These expressions reflect the direct cost of installing abatement equipment in addition to the cost of abating pollution by operating at a lower level of output. Even if it were argued that the cost of installing scrubbers is the same for all firms in an industry (it is a difficult argument to make that these costs are exactly identical), the lost profits from operating at a lower level of output cannot be argued to be the same. Firms produce products that are differentiated

by attributes and geography. Firms have different marginal production costs. It is thus implausible to assume firms have exactly the same $c_j^i(x)$ in an industry, but the mechanism is not robust to small differences.

Realism of Assumption 2. It is also implausible that an audit would reveal $c_j^i(x)$ exactly, no matter how small the probability of so revealing. The author provides evidence that regulators maintain information on firms, but this does not justify the assumption that $c_j^i(x)$ is learned exactly. And recall the argument that $c_j^i(x)$ reflects not just the cost of installing abatement equipment but also the cost of forgoing output to reduce pollution. It is unclear how an audit could reveal the latter perfectly. How would $\pi_j^i(\infty)$ be measured?

Section on Single-Firm Industries. I was hoping that in Section 5.1, the author would relax assumption 1 in the section on single-firm industries. But here, the author adds the assumption that the regulator can make cost estimates that come arbitrarily close to the truth in single-firm industries. Needless to say, if the regulator can make arbitrarily accurate cost estimates, it is not surprising that it can come up with a scheme that comes arbitrarily close to the first best.