

Dynamic Pollution Taxes under Regulatory Uncertainty

Abstract

This paper considers a setting where a regulator with incomplete information from which to optimally set a pollution tax uses a linear, dynamically adjusting tax mechanism to cost-effectively meet a specified pollution standard. This mechanism provides strong incentives for firms to strategically misrepresent their true abatement costs in order to lower the tax rate while maintaining long-run incentives for least-cost abatement. Using laboratory experiments, we examine dynamic taxes in both point and nonpoint source pollution regulatory settings. We find that in equilibrium the pollution standard is met on average across a variety of policy designs. Further, the observed equilibrium tax rates, and the effects of policy design on tax rates, are generally consistent with a theoretical model that allows for a mix of myopic and strategic firms.