

Why Voluntary Programs Have Been Adopted: A Theoretical Analysis of Voluntary Pollutant Reduction Programs

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In order to explain why the regulator implements a voluntary emission reduction program (VP), we build a model with a regulator, multiple polluting firms and a legislator who is affected by a lobby group of the polluting firms sets a mandatory standard. We also examine property of the VP the regulator sets to maximize social welfare and do comparative statics. In this model, the regulator can implement the VP which generates less social cost than the mandatory standard. We find that the regulator should set abatement rate under the VP as much as possible and should not set abatement rate to maximize participation rate. Changes in parameters affect aggregate abatement under the VP more than under the mandatory standard because such changes affect abatement rate of individual firms and participation rate. We also find that the smaller the number of polluting firms is, the more effective the VP is and the higher the participation rate is.