

Does an Optimal Voluntary Approach Flexibly and Efficiently Control Emissions from Heterogeneous Firms?

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Abstract

We theoretically examine voluntary policies' potential for controlling emissions from a large number of heterogeneous firms under an asymmetric information case and flexibility of the optimal voluntary policy. Potential of flexible voluntary policies depends on type of heterogeneity, distribution of firms and possibility of failure in introduction of inflexible mandatory regulation. If heterogeneity of emission abatement costs results from firms' technology level and there are few low technology firms, there is likely to exist a flexible voluntary policy that generates higher social welfare than the inflexible mandatory regulation. However, an inflexible voluntary policy is the best among feasible voluntary policies if higher abatement cost firms exist more than lower abatement cost firms. Moreover, no voluntary policy can generate higher social welfare than the inflexible mandatory regulation if heterogeneity of emission abatement costs results from firms' emission size and there are many small emission size firms, some medium emission size firms and a few large emission size firms, and introduction of the inflexible mandatory regulation can fail.