

## Publication

### Are Emissions Trading Schemes Cost-effective?

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The use of price instruments is often advocated by economists, based on their ability to bring about marginal abatement cost equalisation, and hence to achieve targets at least cost. We use the EU ETS as a case study and test this theoretical prediction. We parametrically estimate separate hyperbolic and enhanced hyperbolic distance functions for various industries of the German manufacturing sector and are therefore able to compute the shadow value of CO<sub>2</sub> emissions. We are the first to provide firm-level estimates of the marginal cost of CO<sub>2</sub> emissions using confidential administrative data for German manufacturing firms between 2005 and 2014. This allows for an unprecedented insight into the cost of the EU flagship climate policy for manufacturing firms. We are able to describe the evolution of the abatement costs over time and across industries, tracking the impact of changes in the policy design and its stringency on the behaviour of the firms in our panel. Our findings provide valuable information for policy makers in the European Union and beyond on the actual level of the costs imposed by climate change policy, and its distributional impacts across firms and industries.

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