

# Equilibrium Effects of Carbon Policy

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## Abstract

We study the average and aggregate treatment effects of a carbon policy when only a subset of plants in the economy are regulated and when firms compete imperfectly. We develop a generalized method of moments (GMM) estimator that recovers reduced-form parameters consistent with a model of differentiated product markets with multi-plant firms, and use these estimates to evaluate counterfactuals. In Monte Carlo experiments, our estimator performs well in finite samples, while conventional difference-in-difference estimators are prone to misrepresent the level, and even the *sign* of the true effects. We use our method to quantify the effect of the EU Emissions Trading System CO<sub>2</sub> emissions and revenues of French firms. We find that the regulation reduced emissions at regulated plants and *increased* revenues of regulated firms relative to an unregulated counterfactual, consistent with an endogenous technological response. We also find evidence of spillover effects of the regulation across plants within regulated firms and across firms within regulated sectors.

**Keywords:** regulation , spillovers, environment, energy, firms

**JEL Classification:** Q48, L1, L5

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