The effects of local pollution regulation on greenhouse gas emissions

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Abstract

In most countries, environmental regulation has focused on local pollution, which causes damages near the emission source, while national regulation on greenhouse gases (GHG) has been slow. In this paper, we ask whether US local air pollution regulations have had an effect on GHG emissions. On the one hand, a firm required to lower emissions of local pollutants might respond by adopting technologies that concurrently reduce GHG, thereby contributing to limiting global warming. On the other hand, if global and local pollutants are substitutes in production, mandating a decrease in local pollution could encourage a deterioration of the environment through other pollutants. The analysis exploits variation in local pollution regulation across US counties as well as exogenous changes to air quality standards to estimate the effect on GHG emissions using both a propensity score matching estimator and a fixed effects regression. Results suggest that counties which have implemented more stringent local pollution regulation do not exhibit GHG emission levels that are systematically different from counties with less stringent regulation. The lack of evidence of a significant complementarity between local and global pollution suggests that current efforts to control local air pollution would not necessarily translate into reductions in global pollution, impressing further the need for global cooperation on GHG reductions.