policy brief

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Climate Policy and Competitiveness: Policy guidance and quantitative evidence

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Climate change is a global problem because greenhouse gases (GHGs) are global pollutants. Countries that undertake unilateral policies to reduce GHG emissions will incur the cost of those policies, while all countries receive the benefits. This misalignment of costs and benefits lends itself to free-riding, where countries are reluctant to undertake costly emission reductions out of concern that other countries will not adopt comparable measures. In public discourse, these concerns often revolve around the idea that unilateral policies will impact a country's global "competitiveness".

While the issue of competitiveness may weigh heavily in the minds of politicians, policy makers, and the general public, the economic literature does not have a precise definition of competitiveness in this context. In this article, the authors discuss possible ways to anchor the concept of competitiveness in economic analysis. By relating competitiveness to the economic literature, the authors are able to conduct a systematic survey of research assessing the quantitative impacts of unilateral climate change policy. Using results from nearly 300 experiments from 54 articles that use computable general equilibrium (CGE) models, the authors assess the impact of unilateral climate change policies on competitiveness.

In public discourse, competitiveness surrounding climate change is used as a catch-all term to reflect an amalgam of concerns related to trade, profitability, employment, and welfare. The authors focus their analysis on competitiveness outcomes at the sector level. For example, a new policy limiting emissions may affect the profitability of firms in emissions-intensive and trade-exposed (EITE) sectors. Emission- intensive industries will directly face the costs of complying with new regulations. Where industries are producing goods that are highly traded, the price at which firms are able to sell these goods depends on the interaction of world supply and demand. If the domestic industry represents a small share of world supply, then it has limited ability to pass on increased input costs to consumers. Accordingly, under unilateral emission regulations, the competitiveness or profitability of firms in EITE sectors may be worsened.

The authors' survey of the literature reveals a substantial degree of convergence, at least for two key indicators. Specifically, most models estimate that output for EITE sectors will decrease in countries adopting unilateral climate policies. A 20% emission reduction target may result in a 5% reduction in EITE sector output, while a 40% reduction target may result in a 15% reduction. However, in terms of overall welfare impacts, most models predict only very small changes in social welfare, even for quite large mitigation targets.

The similarity in results across studies may be partially driven by similar model assumptions. The authors find studies that relax a few key assumptions (like frictionless labor markets or perfectly competitive industries operating at constant returns to scale) have results that deviate significantly from those of more standard models. Additional work to examine the common assumptions of CGE models should be undertaken to validate these results and clarify the impact of unilateral climate change policies on a country's "competitiveness".