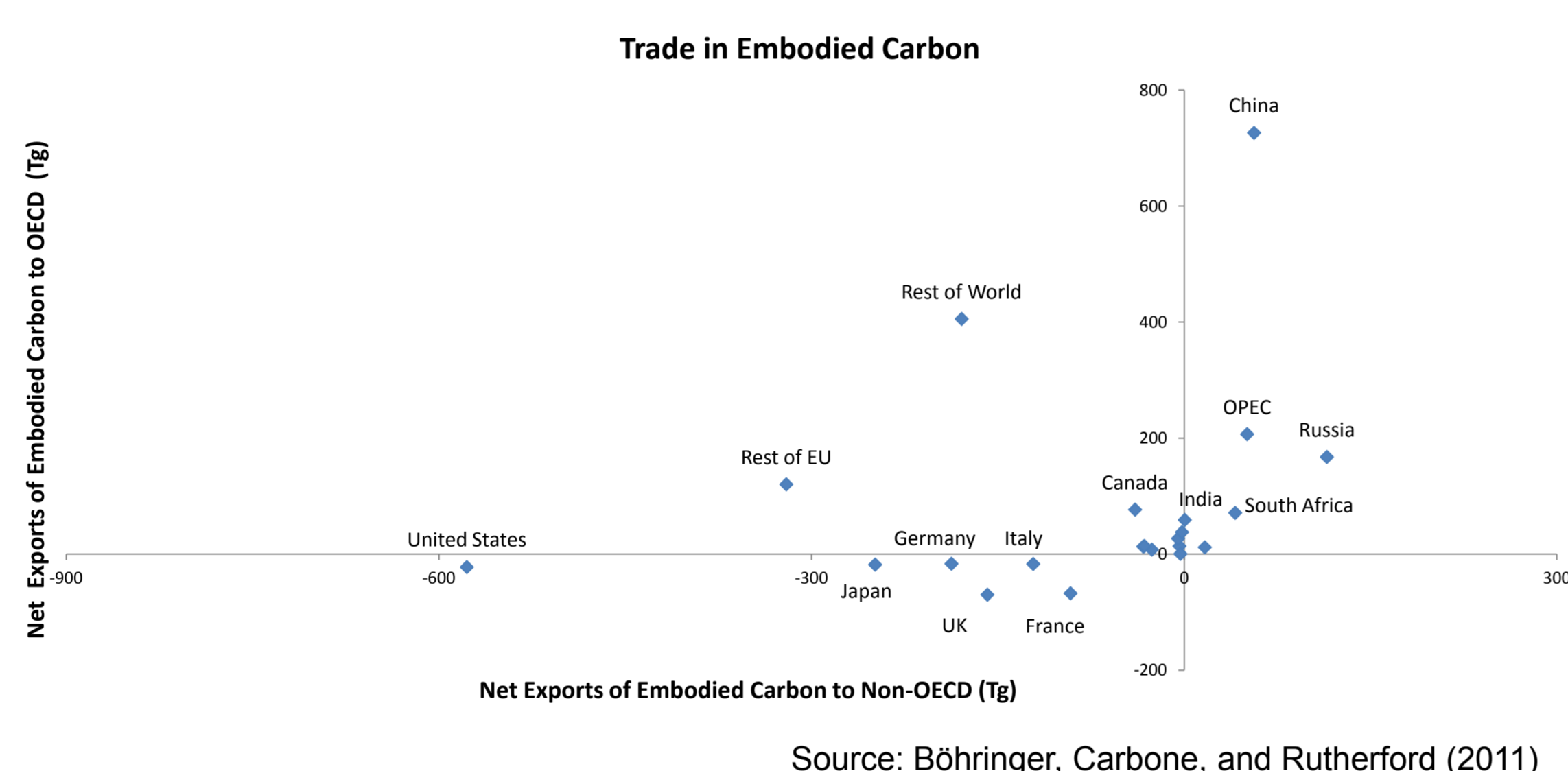


Unilateral Climate Policy

Introduction

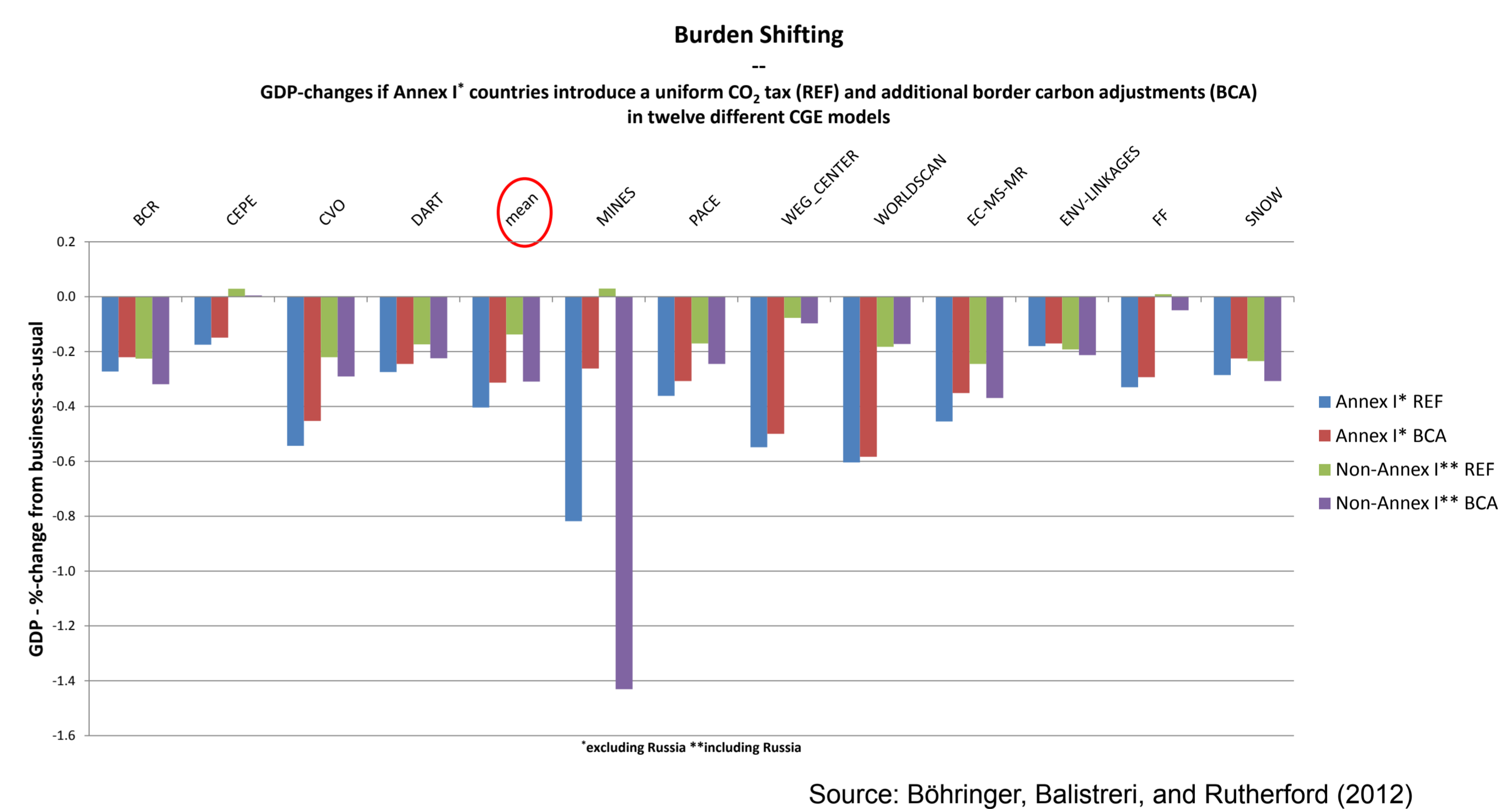
In the absence of an effective global agreement as a first-best solution to mitigate climate change, industrialized countries that are large net importers of carbon lead the way with unilateral carbon emission reductions. The effectiveness of unilateral action, however, is hindered by carbon leakage, i.e., the relocation of emissions from regulated to unregulated regions. Associated with carbon leakage are concerns on excessive competitiveness losses of emission-intensive and trade-exposed (EITE) industries in regulated regions.

The most discussed measure to overcome these problems is border carbon adjustment (BCA), i.e., combinations of import tariffs and export rebates on carbon embodied in trade. Given the massive scale and the direction of trade in carbon, BCA might have strong implications for global and regional economic welfare as well as production in EITE industries. Against this background a key question is how to design unilateral climate policies in a second-best way whilst respecting for equity concerns at the cross-country level and competitiveness concerns at the industry level.



Results

- BCA are effective in reducing carbon leakage.
- Without comprehensive export rebates, the effectiveness of BCA as a measure to protect domestic EITE industries hinges on two key industry-specific characteristics: the share of embodied carbon of goods stemming from imported sources and the degree of export orientation. Export-oriented industries producing with a large share of imported embodied emissions will rather suffer than benefit from carbon tariffs.
- Global cost savings through the introduction of BCA are negligible.
- BCAs may lead to a substantial burden shifting from regulating regions to unregulated regions, mainly due to changes in the terms-of-trade.



Research Questions

- How effective is BCA in reducing carbon leakage?
- Is BCA an effective tool to protect EITE industries in unilaterally abating regions?
- How big are the global cost savings from BCA?
- What is the incidence of BCA across regions?

Modeling Framework

- The main data sources for our policy analyses are the Global Trade Analysis Project (GTAP) and the World Input-Output Database (WIOD).
- The carbon embodied in traded goods is calculated based on multi-region input-output (MRIO) analysis.
- Economic impacts of unilateral climate policies are assessed based on large-scale multi-region multi-sector computable general equilibrium models (CGE).



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Research Interests

- Energy and Climate Policy
- Economic Impact Analysis
- Computable General Equilibrium Modeling

Teaching

- Climate Change Economics
- Energy Economics
- Computational Economics
- European Economic Policy

Publications

- Böhringer, C., Fischer, C., Rosendahl, K. E. (2014), Cost-effective unilateral climate policy design: Size matters, *Journal of Environmental Economics and Management* 67, 318–339.
- Böhringer, C., Müller, A., Schneider, J. (2014), Carbon Tariffs Revisited, *The Harvard Project on Climate Agreements*, DP 14-64.
- Böhringer, C., Lange, A., Rutherford, T. F. (2013), Optimal emission pricing in the presence of international spillovers: Decomposing leakage and terms-of-trade motives, *Journal of Public Economics* 110, 101–111.
- Böhringer, C., Balistreri, E.J., Rutherford, T. F. (2012), The Role of Border Carbon Adjustment in Unilateral Climate Policy: Results from EMF 29, *Energy Economics* 34, Supplement 2, 97-110.
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