# Where to Buy Your Imports and the Potential for Reducing CO2 Emissions

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Despite the attention consumer responsibility for emissions has received in the literature, only a few studies analyze the emissions reduction potential of consumption-based environmental regulations. To fill part of this gap, this study combines linear programming models with input-output analysis to find the global CO2 emissions minimizing reallocation of imports of final products across exporter countries. The structures of global supply chains (i.e. the sourcing patterns of intermediate inputs) are assumed to remain unchanged, since these cannot be affected directly by consumers. Our model allows the world to reduce emissions by deploying differences between country- and industry-specific production technologies (including emission intensities), under constraints that maintain the current scales of economic activity in each of the countries. The optimal solution determines who imports from whom on the basis of comparative advantage regarding emission characteristics of the production processes of final products. The emission data and data on the structures of global supply chains are taken from the World Input-Output Database (WIOD).

Our results show that the emissions reduction potential was about 1Gt (3.8% of the global CO2 emissions) in the year 2007. The optimal solution yields the largest emission reductions in China, India and the USA. Reallocation of imports of final products would reduce global emissions in particular in industries like Electricity, Gas and Water Supply, and Chemicals and Chemical Products. Considering that the optimal reallocation would require massive structural changes all over the world and the reduction potential is still relatively small, we conclude that such consumption-based environmental policies by reallocation are not effective in emissions reduction.