

# Carbon Tariffs, Emissions Leakage, and Production Relocation

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## Abstract

We study the effects of carbon tariffs by using a North-South duopoly model in which firms emit carbon during their production. The North adopts one of the carbon tax regimes, (1) a carbon tax, (2) a carbon tax with a carbon tariff, and (3) a carbon tax with a carbon tariff and an export rebate, while the South does not implement a carbon tax. We show that the North's adoption of the carbon tariff with the export rebate can prevent emissions leakage driven by northern firm's relocation to the South. However, the adoption of the carbon tariff alone cannot necessarily prevent such emissions leakage. We compare the carbon tax regimes in terms of each country's welfare attained under the North's optimal carbon tax. We show that the carbon tax regime with the carbon tariff and export rebate could allow the North to achieve the highest welfare. The South's welfare could be the lowest under the carbon tax regime with the carbon tariff.

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Keywords: carbon tax, carbon tariffs, carbon leakage, relocation.

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