

Carrying Carbon?

Carbon Leakage with International Transport*

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Abstract

This paper studies the effects of carbon pricing on greenhouse gas (GHG) emissions from international transport and production or consumption of traded goods. The theoretical model takes into account endogenous freight rates, the carrier's market power, and the backhaul problem due to the carrier's commitment to a shipping capacity sufficient for a round trip. These features of international transport affect both cross-border and cross-sector carbon linkage caused by carbon pricing. The effectiveness of emission regulations depends on whether or not the backhaul problem exists. Interestingly, "negative" leakage can occur in the absence of the backhaul problem. International transport mitigates cross-border carbon linkage caused by emission regulations in production even with the backhaul problem. The opportunity of foreign direct investment (FDI) also matters to the effectiveness of carbon pricing. In particular, if the carrier deters manufacturers' FDI, emission regulations in the transport sector may not affect GHG emissions at all.

JEL Codes: F12, F18, F23, L13, Q56, R40

Key words: Transportation; Backhaul problem; International oligopoly; Climate change; Carbon pricing; Carbon leakage

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