Resource Shuffling & Scrap Trade

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Abstract

Scrap availability limits how quickly global steel production can decarbonize. This paper shows that a border carbon adjustment can eliminate classic import carbon leakage but triggers resource shuffling: as regulated regions demand more of the cleaner, scrap-based steel, unregulated regions shift towards dirtier one. I develop a dynamic trade model with three steel production routes and endogenous scrap generation from depreciating product stocks. Higher carbon prices raise global scrap demand, improving waste-processing efficiency globally. However, the regulated region absorbs a disproportionate share of scrap supply for newly-created clean demand, driving up scrap prices and forcing the unregulated region into dirty consumption. This resource-shuffling effect diminishes as steel stocks accumulate over time and relax the scrap constraint.

JEL codes: Q53, Q56, Q58, F18

Keywords: carbon border adjustment mechanism, carbon leakage, steel, trade, recycling