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Negotiations over a quantitative-restricted international emissions trading agreement under general equilibrium effects

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Extended Abstract

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Abstract Summary

This paper examines whether quantitatively restricted international emissions trading (IET) can outperform full market linkage once general equilibrium (GE) distortions are taken seriously. Motivated by widening cross-jurisdictional carbon-price differentials and renewed policy interest in Article 6 cooperation, the study asks how bilateral trading volumes should be determined when unrestricted IET is no longer guaranteed to be Pareto-improving.

The paper develops a tractable two-country analytical model that extends standard IET frameworks by incorporating indirect welfare costs from GE effects. Under restricted IET, the feasible range of trading volumes is characterized as a Pareto-efficient set, and the equilibrium trading volume is determined as the Nash bargaining solution of bilateral negotiation. The theory is then illustrated with a tailored multi-region CGE model, built on a GTAP-based framework, that incorporates three major GE channels: tax interaction, terms-of-trade, and labor-market distortions.

Results show that the feasibility and equilibrium scale of restricted IET depend jointly on the magnitude of GE effects and the inter-jurisdictional trading price. In the EUR–CHN case, system welfare increases with trading volume, so unrestricted IET performs best; in the SEA–CHN case, system welfare is non-linear and a restricted arrangement can outperform full linkage. More broadly, unrestricted IET can be welfare-decreasing for individual jurisdictions—and even for the system as a whole—when GE distortions are strong, whereas restricted IET offers a pragmatic middle ground that can preserve mutual gains while also lowering carbon leakage.