

Understanding overlapping policies: Internal carbon leakage and the punctured waterbed

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Abstract We present an integrated framework to understand the emissions impact of unilateral overlapping policies within a carbon-pricing system. “Internal carbon leakage” captures emissions displacement within the system (e.g., due to greater product imports from a neighbouring country). The waterbed effect captures the policy's interaction with the system's overall emissions cap. Current market rules in the reformed EU ETS, California's carbon market and RGGI feature “punctured” waterbeds that allow overlapping policies to affect aggregate emissions. We present simple formulae to estimate internal carbon leakage for different types of policy such as a carbon price floor (perhaps with a border tax adjustment), an energy efficiency program, and renewables support. The sign and magnitude of the climate benefit from an overlapping policy varies widely depending on its design, location and timing. Punctured waterbeds raise the stakes: well-designed overlapping policies can be much more climate-effective but others now backfire.

Keywords Cap-and-trade, carbon leakage, carbon price floor, carbon pricing, EU ETS, overlapping policy, hybrid policy, waterbed effect.

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