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Leave or remain? An evolutionary approach to carbon leakage in Emission Trading Systems

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ABSTRACT

Emissions Trading is gaining increasing importance around the world as a suitable instrument to address climate change. In the absence of a global carbon market, however, unilateral carbon policies may end up causing carbon leakage effects, the more so if carbon prices are to increase in the future to achieve more ambitious emissions abatement targets.
This paper intends to explore the possible delocalization effects of an Emissions Trading System (ETS) by proposing an evolutionary theoretical model in which regulated firms decide whether to remain (keep their production activities in the domestic country) or leave (move production abroad where no ETS is in place) imitating what other firms do. We investigate how this decision is affected by some key ETS design features, such as the emissions cap, the floor price level and the number of allowances granted for free. Numerical simulations show the existence of heterogeneous and possibly non-linear effects of different policy parameters on firms' decision to move, and on their abatement efforts.