

Mitigating Emissions Leakage in Incomplete Carbon Markets

Abstract: When a policy regulating greenhouse gas emissions applies to only a subset of emitting sources, a policy-induced shift in economic activity to unregulated sources can substantially undermine policy effectiveness via emissions “leakage”. Output-based rebating of compliance costs has emerged as a preferred approach to mitigating this leakage risk. Output-based rebates, which act as a production subsidy, have potentially significant implications for both economic efficiency and the distribution of policy impacts. It is therefore important to judiciously target these subsidies to those industries truly at leakage risk. We provide a theoretically sound basis for deriving industry-specific, output-based subsidies under different policy objective functions. We show how the optimal industry-specific subsidies depend on both the emissions intensity of foreign production and the responsiveness of trade flows to policy-induced changes in domestic production. Using rich transaction and firm-level data from the U.S. Census, we calibrate industry-specific, output-based subsidies for manufacturing sectors in the United States. We assess the efficiency and distributional implications of implementing a domestic carbon policy with and without these leakage mitigation provisions.