

[ASSESSMENT OF CARBON LEAKAGE THROUGH CHANNELS: THE HUBEI PILOT ETS PERSPECTIVE]

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Overview

The problem of carbon leakage still exists under the “Nationally Determined Contributions” model of “Paris Agreement”. As carbon leakage occurs through channels of competitiveness, demand, energy and others, a systematic analysis of carbon leakage must be founded on the study of channels.

Methods

To this end, this study sets up a theoretical model with carbon leakage channels accounted for, and further incorporates a framework to decompose carbon leakage through channels based on the TermCO2 model with the Hubei Pilot ETS as an example to verify the model.

Results

The results indicate that: (1) Hubei had been reduced by 6,731.96 kilotons carbon emissions, while other regions had increased by 892.07 kilotons, with a carbon leakage rate of 13.251%; (2) the competitiveness and demand channels had a leakage rate of 23.655%; (3) energy substitution had been the main carbon reduction method in Hubei, and the energy channel had a leakage rate of 7.605%.

Conclusions

(1) carbon emissions had increased more in regions closer to Hubei and in traditional high energy-consuming industries, especially electric and heat power industry; (2) the impact of ETS was more significant on Hubei’s export and demand, and less on imports, indirectly indicating that the effect of import carbon tariff is muted; (3) the energy channel had a much lower leakage rate because of the small extent of reduction in energy price.

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