

Global Climate Games: How Pricing and a Green Fund Foster Cooperation

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This a great paper!

Solving a Market Failure: Prices vs. Quantities

M **failure:** emitters do not internalize social costs of emissions

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- ▶ In a certain world: both instruments are equivalent.
- ▶ In an **uncertain world**: no longer equivalent
 - ▶ Optimality depends on relative slopes of marginal benefits and marginal costs of abatement (Weitzman, 1974).
 - ▶ Green (2008), Newbery (2010), Tirole (2010).

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 - ▶ Green (2008), Newbery (2010), Tirole (2010).
- ▶ Other disadvantages of cap-and-trade:
 - ▶ **Carbon price volatility** and **unfair**.

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This paper adds an **additional disadvantage of cap-and-trade**:

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 - ▶ Each country chooses abatement so as to maximize own net benefits w/o internalizing aggregate benefits→ abatement is **inefficiently low**; overall abatement costs not minimized
 - ▶ A **cap-and-trade** system improves upon the public good game (because of trading), but it is still suboptimal, and can be manipulated.

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Alternative policy to reduce emissions such that:

- ▶ **Cooperation is possible**
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- ▶ **Commitment is incentive compatible**

- ▶ Stick-and-carrot mechanism:
 - ▶ **Stick:** countries must implement policies to reduce emissions
 - ▶ **Carrot:** rewards for countries with low p/c emissions

Proposal's Ingredients

1. **Target revenues** and flexibility in domestic policies

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4. Scale down payments if target revenues not achieved

$$G (E_g - E) \left(P / P^T \right)$$

Discussion

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- ▶ How are domestic policies translated into revenues? Is the **support to renewables** and energy saving policies factored in and if so, how?
 - ▶ Explicit subsidies to renewables still needed
- ▶ How **elastic are emissions** to the carbon tax?
 - ▶ Effect of carbon tax could be offset by reduced input margins
- ▶ These revenues should not be devoted to supporting renewables
 - ▶ Consumers must face the **real cost of producing electricity**

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- ▶ Strengthen incentives by making R^* exogenous, not only of the carbon price P^T , but also of current emissions E :
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 - ▶ Rewards for **reducing emissions**
- ▶ Caution! In the short-run (profits cannot be competed away by the threat of entry), **windfall profits made by the non-emitters** once the carbon tax is implemented
 - ▶ These could be used as an extra source of revenues that would **alleviate the financial burden of reducing emissions**