“Tackling Carbon Emissions: Some Key Policy Issues”

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Symposium to Examine Impact of a Tax on Carbon, Ohio Wesleyan University
Delaware, OH, February 18, 2015

THE OHIO STATE UNIVERSITY

Carbon Taxes vs. Cap and Trade

- **Economists see carbon emissions as a "missing-market" problem**
- **Debate over carbon taxes vs. cap and trade is about how best to mimic market solution, i.e., *prices* vs. *quantities***
- **<u>Carbon taxes</u>: if firms want to emit CO_2, they are directly charged "price" set by policymaker**
- **<u>Cap and Trade</u>: policymaker sets total cap on CO_2, and firms required to have emissions permits - key issue is distribution of permits, i.e., auction vs. free allocation with trading**

Carbon Taxes vs. Cap and Trade

- In principle, both policies generate same price of carbon, i.e., carbon tax equals traded/auctioned permit price
- Firms have incentive to reduce abatement costs under both
- Distributional implications:
  - cost of complying with cap and trade lower for firms
  - tax generates revenue, while cap and trade only generates revenue if some/all permits are auctioned
- Taxes and permit auctions may generate “double-dividend”

Carbon Taxes vs. Cap and Trade

- Choice driven by information requirements: i.e., level of uncertainty over social costs of emissions vs. abatement costs
  - Cap and trade should be used if social costs are uncertain, i.e., avoids getting price wrong
  - Taxes should be used if abatement costs are uncertain
- Common view: better to get quantities rather than prices wrong
- Also, more complex than just choice of prices – rate at which future damages from climate change are discounted is critical

Estimates of Social Cost of Emissions

Social Cost of CO_2 (2007 $ per metric ton of CO_2)

Discount Rate	5.0%	3.0%	2.5%
2015	11	37	57
2020	12	43	64
2025	14	47	69
2030	16	52	75
2035	19	56	80
2040	21	61	86
2045	24	66	92
2050	26	71	97

Source: Interagency Working Group on Social Cost of Carbon, US Government, 2013

Unilateral Climate Policies

- **Failure to reach international agreement on reduction of carbon emissions – increased focus on unilateral climate policy**
- **Carbon taxes applied in Australia, tradable permits adopted in EU and recently Québec**
- **Unilateral policies often include some type of border measure targeted at energy-intensive imports, i.e., "carbon tariffs"**
- **Logic of border measures: *carbon leakage* and loss of *competitiveness***

Would “Carbon Tariffs” be WTO-Legal?

- **Unilateral climate policy should be accompanied by “carbon tariffs” against free-riding countries, i.e., influence international terms of trade – but concern over WTO-legality**
- **If treated as border tax adjustments (BTAs) for domestic taxes, fit principle of a *destination-based* taxation system**
- **WTO rules do allow for BTAs as long as they are *neutral* in terms of their effects on trade**
- **Electricity typically a non-traded good, but downstream energy-intensive goods are traded – would BTAs still be WTO-compliant?**

Possible Impact of BTAs

- BTAs would likely only be applied to small set of energy-intensive imports, i.e., steel, aluminum, paper, cement and chemicals
- Trade-neutrality implies maintaining pre-policy import volume of energy-intensive goods, i.e., cannot be used in discriminatory fashion against foreign producers with higher carbon emissions
- WTO-compliant BTAs solve leakage problem, but do not necessarily restore industry competitiveness
- BTAs may have unintended consequence of “facilitating collusion” in concentrated, energy-intensive sectors such as aluminum