The Relative Merits of Alternative Carbon-Pricing Systems

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Policy Analysts Favor Carbon-Pricing

- No other *feasible* approach can provide meaningful emissions reductions
- *Least costly* approach in short term (heterogeneous abatement costs)
- Least costly approach in *long term* (incentive for carbon-friendly technological change)
- Note: carbon pricing may be *necessary*, but is *not sufficient*.
  - Other market failures: *principal-agent* problem (e.g. energy-efficiency investments in renter-occupied buildings)
  - … And *public-good* nature of information spillovers (e.g., Apple & Blackberry)

Comparing Carbon Taxes & Carbon Cap-and-Trade

- **Major Premises**
  - In large economies, carbon-pricing will likely be an essential *part* of any *meaningful long term* climate change policy
  - Less agreement regarding choice of specific carbon-pricing policy instrument: carbon tax or emissions trading (cap-and-trade)

- **Key Question** (among others)
  - Which approach will be *superior* in terms of relevant criteria, including but not limited to cost-effectiveness, efficiency, and distributional equity?
  - Stavins, Robert N. "The Future of U.S. Carbon-Pricing Policy." National Bureau of Economic Research Working Paper 25912. May 2019.

- **One Major Conclusion** (among others)
  - *Specific design* of carbon taxes and cap-and-trade will be *more consequential* than the *choice* between the two instruments.
  - [I omit positive political economy dimensions – covered in Session 2 today]

Comparing Carbon Taxes & Cap-and-Trade: Similarities & Symmetries

- Of 14 issues, some appear at first to be key differences, but differences *fade* on closer inspection (and *depend* on specifics of design)
- **Perfectly Equivalent in regard to:**
  - *Incentives for emission reduction* – both can be upstream on carbon content of fuels
  - *Aggregate abatement costs* – both are c/e, same incentives for tech change, offsets
  - *Effects on competitiveness* – both can lessen impacts via border adjustments
- **Nearly Equivalent**
  - *Possibilities for raising revenue* – cap-and-trade (CAT) can auction, but given Congressional committee structure, revenue recycling more difficult w/CAT
- **Similar**
  - *Costs to regulated firms* – CAT can freely allocate allowances, but tax can provide inframarginal exemptions below specified level of emissions
  - *Distributional impacts* – can be designed to be roughly equivalent

Comparing Carbon Taxes & Cap-and-Trade: Differences & Distinctions

- **Some Distinctions:**
  - *Transaction costs* – volume discounts on transaction costs can violate *independence property* (Stavins 1995)
- **Subtle Differences**
  - *Performance in presence of uncertainty* – Weitzman rule (1974), *stock* externality (Newell & Pizer 2003), but *persistent effects* of technology shocks (Karp & Traeger 2018) leads to *positive correlation* between benefits & costs (Stavins 1996)
  - *Linkage with other jurisdictions* – easier w/CATs, but taxes can also be linked
- **Significant Differences**
  - *Carbon-price volatility* – problem only for CAT, but price collars & banking
  - *Interactions w/complementary policies* – issue w/CAT; tax eliminates "waterbed"
  - *Market manipulation* – need regulatory oversight for this, and for tax evasion
  - *Complexity and administrative requirements* – CAT more complex, but will a simple tax remain simple as it works its way through a legislature?

Hybrid Policy Instruments and a Policy Continuum

- Many remaining differences *diminish with implementation*
- *Hybrid policies* that mix features of tax and cap-and-trade *blur distinctions*
- Result: *Dichotomous choice between carbon tax and cap-and-trade can become a choice of design elements along a policy continuum*
- Design of instruments can be *more consequential* than choice between the two

- Note that track record of ***61*** carbon-pricing policies worldwide contrasts with ***176*** countries with renewable energy policies or energy efficiency standards, ..
  - … and another ***110*** national and sub-national jurisdictions with feed-in tariffs.

Can Carbon-Pricing be Made More Politically Acceptable?

- One promising approach could be through *judicious policy design* (which may *depart* from first-best design):
  - *Phase in* taxes/caps over time (rather than dynamically efficient time path)
  - *Earmark revenues* from tax/auction to finance additional climate mitigation (in contrast to optimizing system via cuts in distortionary taxes)
  - *Use revenues for fairness* purposes, such as with lump-sum rebates or rebates targeted to low-income and other particularly burdened constituencies (tax with "carbon dividends" or "cap-and-dividend")

- Another approach is *better design* of second-best *non-pricing* instruments (such as "clean energy standards").

- But – for the longer term – *ongoing research* on carbon-pricing itself is very much warranted,
  - particularly if it can be carried out in the context of *real-world politics*, and *focuses* on policies that are *likely* at some point to prove politically *feasible*.

Thank You!

For More Information

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