Carbon Pricing within the Fiscal System: Implications of Climate Risk

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Background

-Carbon pricing could yield substantial new tax revenue

- $33/ton carbon tax in US in 2020 would raise roughly $180 billion/year

-For budget-constrained governments, uses for new revenue can yield significant efficiency gains

- Fund tax cuts (or prevent tax increases)

- Reduce budget deficits, fund new spending

- These gains – the “revenue recycling effect” – can dramatically lower the cost of carbon pricing
Tax Interactions

- However, there is an offsetting negative effect
  - Pre-existing taxes on capital and labor distort capital and labor supply decisions
  - Carbon pricing effectively taxes production and consumption, exacerbating capital and labor supply distortions
  - Under central case assumptions, this negative “tax interaction effect” more than offsets gains from revenue recycling
  - Optimal carbon price = marginal damage/MCPF
Tax Interactions from Pollution

- Almost all models in this literature treat pollution damage as a separable term in utility.
- This means damages have no effect on the economy.
- A handful of papers relax this assumption.
- Williams (2002): when pollution damages productivity, this also interacts with the tax system.
  - Damage is like a tax on production, and discourages factor supply.
  - This magnifies the benefits of reducing pollution.
- Result: optimal tax = marginal damage.
Tax Interactions and Climate Risk

- How could climate risk interact with tax system?
- Production damage: dynamic version of earlier result
- But production damage is stochastic, so investments are also riskier
- Damage can directly destroy part of the capital stock
- Damage can increase need for government spending
- Mortality: higher mortality ➔ less reason to save
- Lots of room for new research