A U.S. Carbon Tax?

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Economists: Climate Change is a Market Failure

• Prices don’t reflect damage to the environment.
• Damages are externalities.
• An economy-wide price signal ensures that all economic decisions incorporate both private and social costs.
Who’s interested in the prospect of a US carbon tax?

• Economists, of course
• Some environmental groups
• Energy and environment committees and tax writing committees
• Some corporations/industry groups
• Media
• Executive branch staff
• Some budget hawks and tax reform advocates
Greenhouse Gas (or Carbon) Tax: Key Features of an Efficient Policy

- Excise tax on the carbon content of fuels
- Starts modestly and rises in real terms gradually and predictably
- Prices reflect climate damages
- Imposed upstream (fossil fuel producers) or downstream (electricity producers)
  - Upstream is most efficient because it covers more sources with fewer regulated firms
- Use revenue wisely
- Leverage US action into action by others
  - Maybe impose carefully tailored border adjustments
- Also fund basic research, diplomacy, adaptation, etc.
Purpose: to change the relative prices of fuels

- Tax changes relative prices of inputs and outputs based on carbon content of energy
- Economic activity incorporates cost of emissions
- A carbon price is unlike other taxes in that revenue is not its primary economic purpose.
Potential Reasons to Embed Carbon Tax Within Broader Fiscal Reform

- Lower other taxes
- Reduce deficit
- Reduce need for Clean Air Act Regulation, state policies, and other regulation and subsidies
- Limit spending cuts
- Allow progressive personal income tax reforms
- Build larger platform for deal-making
- Limit rent-seeking and delay on climate policy

Lower costs of tax and regulatory system

Lower burden on poor

Raise probability of success?
Why Economists Focus on “Efficiency”

- Taxes create incentives: reduce emissions or reduce working or saving
- These incentives have important economic consequences.
- “Excess burden” ≈ 30 cents on the dollar
  - Example: Bridge toll
- Appropriate carbon tax’s environmental benefits outweigh costs.
- Right tax mix minimizes cost of raising revenue and lowering emissions.
Why fiscal reform will be on the agenda

Graph: The Hamilton Project, *A Dozen Facts About Tax Reform*, May 2012

Source: CBO (2012b); CMB (2012b).
Note: 2012 and forward are based on the alternative fiscal scenario.
Greenhouse Gas Abatement Cost Curve

$/ton CO_2$ equiv

Area under curve = Total cost of abatement

Marginal abatement cost

Lesson: Abatement costs rise non-linearly

Reductions from Business as Usual
Carbon or GHG Tax: Firms/consumers reduce emissions up to point where it’s cheaper to pay the tax.

$/ton CO_2$ equiv

Marginal abatement cost

Area = total cost of abatement

$P_{tax}$

(Tax revenue is a transfer, not a cost)

(GHG reduction as a result of the tax)

Remaining Emissions

Reductions from Business as Usual
Closer to a plausible scale...

In early years, tax revenue swamps total abatement cost.
Ian Parry and Roberton Williams

Moving U.S. Climate Policy Forward: Are Carbon Taxes the Only Good Alternative?

Potential Contribution of Carbon Tax to Future Deficit Reduction (all figures in 2007$)

- Projected federal budget deficit
- Carbon tax revenue
- Carbon tax rate

$ billions

$ per ton of CO2
## How much revenue would a carbon tax raise?

**Literature synthesis by WRI’s Mike Obeiter**

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<th>Author</th>
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**Lesson:** Carbon Tax Can Raise Serious Revenue
Overarching questions for our recent work

1. If a carbon tax were implemented:
   » How does the use of its revenue affect the outcomes?

2. If deficit reduction were undertaken:
   » How does a carbon tax stack up against other revenue raisers?
New Brookings Study: The Potential Role of a Carbon Tax in U.S. Fiscal Reform

• Core scenario:
  » Carbon tax with lump sum rebate
  » Initially $15 per ton CO2, rising at 4% real

• Alternative scenarios:
  » Reduce deficit
  » Reduce tax rates on labor or capital income
Core scenario

- Carbon tax with lump sum recycling
  - Initially $15 per ton of CO2
  - Rising at 4% per year
  - Applied to primary fossil fuels and imports
    - Coal mining
    - Crude oil extraction
    - Natural gas extraction
  - US only
Revenue is substantial

![Graph showing tax revenue over time. The graph indicates a substantial increase from $80B in 2010 to $310B in 2050.](image-url)
Emissions decline significantly

Cumulative reduction: 40 billion metric tons

34% below baseline in 2050
Capital tax swap results are sharply different than other scenarios.
Big difference is investment

Cap tax reduction more than offsets effect of carbon tax on investment

Capital tax swap
Investment increase drives up wages and employment to 2030
Economic Incidence ≠ Statutory incidence

• Price signal is a hot potato

• Consumers will bear the tax
   » Unless firms can’t pass it along, e.g. foreign competition

• Final incidence depends on what happens to tax revenue
Carbon tax is regressive, but how much depends on the measure of income.

Figure: Burden of $15/ton tax on CO₂ equivalent, as a fraction of income

Source: C. Grainger and C. Kolstad, “When carbon is priced, who ultimately pays?”
http://voxeu.org/index.php?q=node/3911
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