GHG EMISSIONS TAX
RATIONALE AND DESIGN ELEMENTS

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Carbon taxes often higher than ETS prices

A tax, which level is directly linked to GHG emissions (usually expressed as ton of CO2 equivalent)

Why taxing GHG emissions?

- Economic efficiency: polluter pays principle
- Flexibility to affected entities: cost-effective emission reduction
- Revenues to the government
- Low administrative costs, low evasion rates
- Can have a broad coverage of emission sources
Key design elements of a carbon tax

- Tax base
- Tax rates
- Tax revenues
- Tax administration
- Measures to prevent emissions leakage
Tax base

◆ Coverage of fuels, sectors, and gases that will be taxed

◆ What commodities, products or activities will be taxed?
  - carbon content in fossil fuels, such as coal, natural gas, gasoline, diesel
  - Green-house gas emissions from point sources
  - Fugitive emissions

◆ At which point of the value chain will it be taxed?
  - **Upstream**: suppliers of coal, at natural gas processing facilities, oil refineries, bulk importers;
  - **Intermediate**: (refined) products sales-imports and electric utilities;
  - **Downstream**: retail sales of fuel for transport and domestic consumption (e.g. British Columbia);
  - **At the stack**: at the point of carbon emissions to the atmosphere.
Tax rates

◆ Tailored to the intended objectives of a tax

- Change of behavior or technology targeted?
- Revenue raising target?

◆ Rate increase schedules

- Some countries begin with low rates, and publish schedule for rate increase (British Columbia, France), others increase rates discretionary
- Predictable investment signal while easing adjustment
- Real terms increase: what index to use? (e.g. past or expected inflation)
- Variable rates (e.g. indexed to prices in related emissions trading markets - Portugal)
- Adjusted to local conditions: e.g. business and capital turnover cycles
Use of revenues

- Reduce budget deficit
- Tax reform (reduction of other taxes)
- Social transfers to the poor and vulnerable
- Specific purposes (e.g. energy efficiency or low carbon technology investments)
  - Risk of making un-productive use outside of the budget process
  - Risk of precedent for subsequent claims by other interest groups
Revenue potential of a carbon tax

  - GHG emission taxes: over US$10 billion
  - ETS: Almost US$5 billion

Revenues of GHG emissions taxes are still very small compared to direct taxes on income (British Columbia 3% of total revenue, Sweden ~1.5%)

IMF: Potential revenue can be higher: e.g. 3% of China or India’s GDP assuming US$30/tCo2 tax rate and comprehensive coverage (Coady, et al 2015)

Trade-off between fiscal stability and environmental effectiveness (erosion of tax base if behaviour is successfully modified), but can be managed

<table>
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<th>Slovenia:</th>
<th>2010</th>
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<th>2012</th>
<th>2013</th>
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<td>Energy taxes</td>
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<td>CO2 tax</td>
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<td>Transport taxes</td>
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<td>Motor vehicle tax</td>
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<td>Registration fees on motor vehicle</td>
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<td>Pollution/resource taxes</td>
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<td>Environmental taxes - TOTAL</td>
<td>1.162</td>
<td>1.149</td>
<td>1.251</td>
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<tr>
<td>as % of total taxes</td>
<td>9.0%</td>
<td>8.7%</td>
<td>9.5%</td>
<td>10.1%</td>
<td>9.7%</td>
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</table>

Tax administration

- Easy tax collection if tax paid by fossil fuel suppliers or retailers
  - Building on existing tax administration
  - Concentrated sources easier to monitor

- Monitoring verification and reporting
  - Measuring and monitoring quantity and quality of fuel used
  - Estimating carbon content of fuel (to translate to 1 tonne of CO2)

- Low evasion rates (UK 2% for diesel tax vs. 11% VAT and 17% income tax)

- Brings informal sector into tax system (especially if used to reduce labor taxes) by:
  - More labor in the formal (taxed) services market, and
  - Expanded tax base: Consumers of manufactured goods (including informal-sector laborers) are now taxed

- Can improve overall efficiency of taxation if revenues used to reduce other distortionary taxes
Measures to prevent emissions leakage

Integrated measures (designed within the scheme)

- tax free thresholds (e.g. South Africa proposal)
- Exemptions (e.g. Sweden CO2 tax)
- output based rebates (e.g. Sweden NOx charge)
- border tax adjustments (considered by California)
- correction of other taxes (British Columbia)

Complementary measures e.g.

- cash transfers or vouchers
- support for R&D
- Investment subsidies (Denmark, Ireland, British Columbia)

Integrated measures tend to be the main approach to dealing with leakage

- more transparent to stakeholders how leakage is being addressed
- value of support tends to flex with the carbon price