CARBON PRICING POLICIES: OVERVIEW AND INSTRUMENT OPTIONS

Thomas Kansy, Vivid Economics

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Different forms of GHG pricing
Reasons for introducing GHG prices
Country case studies
Challenges faced and lessons learned
Explicit and Implicit Instruments for Pricing GHG Emissions

Broadly revenue neutral or require expenditure

Implicit GHG pricing e.g. feed in tariffs, vehicle efficiency standards

Reduce government expenditure

Fossil-fuel subsidy removal

Potential to raise government revenue

Explicit GHG pricing e.g. cap and trade, taxes
Explicit GHG Pricing Instruments: Emission Trading vs. Carbon Taxes

- Emission trading gives certainty over emissions outcome
- Taxes give certainty over costs borne by participants
- Despite these economic differences, choice between the two is often driven by political economy
- Similarities between the two approaches are greater than the differences
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GHG Pricing Instruments: A Cost-Effective Way for Reducing Emissions at Scale (1)

- Well designed GHG prices have been shown to achieve emission reductions more efficiently than other approaches.

- Benefits of GHG pricing instruments are maximised by broad coverage and well-managed policy overlaps.

Source: OECD (2013) Effective carbon prices
Explicit GHG pricing instruments can help achieve other policy objectives, such as:

- Improving energy efficiency and renewable energy
- Triggering a process of discovering competitive abatement opportunities and thus creating cost-efficient mix of abatement options
- Creating a solid ground for innovation
- Accelerating structural changes of the economy
GHG Pricing Instruments: A Way to Raise Significant Revenues

✓ Carbon tax and ETS (through allowance auctioning) can often raise significant revenues in a relatively administratively simple way that is difficult to evade.

✓ Some studies suggest that GHG pricing can raise revenues with lower macroeconomic distortion than alternatives.

GHG Pricing Instruments: A Way to Encourage Long-run Innovation

✓ Achieving significant emission reductions largely depends on technological innovation, which in turn can help bring down the costs of clean technology

- Academic evidence shows a clear link between energy pricing and innovation in energy saving technologies
- Spillovers from low-carbon innovation may be over 40 per cent greater than in conventional technologies (in the energy production and transportation sectors)
- Some countries are introducing GHG emissions pricing with the objective to position themselves to be global leaders in the emergence of new technologies
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GHG Pricing Schemes plans cover 12% of global emissions in around 40 national and 20 sub-national schemes

Source: World Bank
China’s ETS pilots will move to a national ETS

- Controlling GHG emissions is seen as integral to economic restructuring and changes in China’s patterns of growth
- 7 schemes cover 18% of China’s population and 28% of its national GDP (Guangdong 3rd largest ETS in the world)

- At present, prices range from $3 to $9

- ETS Pilots are experimenting with a wide range of designs varying in coverage, absolute vs intensity cap, free allowance vs auctioning and allowance trading rules

- National ETS expected to be introduced in 2017
South Africa’s Carbon Tax

• Response to voluntary commitment to reduce emissions and reduce the country’s reliance on fossil fuels

• Coverage: 75% of emissions including electricity generation, gasification, glass, cement, refining, mining, paper and pulp, iron and steel, aluminium, chemicals and transport

• Prices: R120/tonne ($7.5/tonne), rising by 10% per year but with tax free allowance leading to initial marginal tax rate of R12-48/tCO₂ ($.75-$3/tonne)

• Revenues are expected to be recycled although details are still to be determined
Republic of Korea’s ETS

- A policy package to reduce emissions by 30% against BAU by 2020
- Part of overarching Green Growth Strategy which envisages Korea becoming a world-leader in green technologies
- Coverage is approx. 66% of emissions including 23 sub-sectors from steel, cement, petro-chemistry, refinery, power, buildings, waste sectors and aviation
- In phase 1 (2015-17), 100% free allowances, moving to <90% free allowance allocation by phase 3 (2021-2025)
- Prices capped at KRW 10,000/tCO₂ ($9/tCO₂ in 2015-16)

Coverage is approx. 66% of emissions including 23 sub-sectors from steel, cement, petro-chemistry, refinery, power, buildings, waste sectors and aviation.
British Columbia’s Carbon Tax

• One of the earliest carbon price schemes, aimed at establishing BC as a leader in the clean economy

• Price of C$30/t ($24/t) having risen by $5/t per annum between 2008 and 2012

• Revenues, by law, have to be recycled with around C$1.2 billion returned in 2013/14

• Since tax introduced, consumption of petroleum products fallen by 16% compared with 3% increase in rest of Canada
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Challenges and Lessons Learned: Disproportionate Impacts on Low-income Households

✓ Pricing GHG emissions can have a disproportionate impact on low income households

✓ However, it is often possible to address these impacts through other measures, such as:
  - Adjustment to other taxes or benefit payments which may or may not address those most affected by GHG pricing
  - Energy efficiency or public transport measures may help those affected by GHG pricing instruments, but may still leave poorest worse off
  - Smart allocation approaches - e.g. through free allocation to electricity suppliers (not generators) to protect customers from rate increases
  - Exempting poor households from any scheme

✓ Challenges can be typically overcome through nationally-specific approaches
Challenges and Lessons Learned: Competitiveness and Carbon Leakage

- There are significant political challenges related to carbon leakage - if introduction of GHG pricing in one jurisdiction leads to activity shifting to jurisdictions where GHG prices are not in place - from both:
  - Industrial competitiveness perspective
  - Environmental effectiveness perspective

- However, ex ante studies have shown that these concerns have typically not had a significant impact, potentially due to:
  - Effective policies which have been put in place to counteract risk
  - GHG emissions prices which have been too low to have an impact
  - Data challenges
  - Risk of carbon leakage not being present
Challenges and Lessons Learned: Policies for Addressing Competitiveness and Carbon Leakage Concerns

- Free allowances
  - Benchmarked or grandfathered
  - (Quasi-) fixed or output-linked
- Exemptions
- Border-carbon adjustments
- Rebates on other taxes
- Direct compensation payments

Under a carbon tax, similar economic characteristics can be delivered by different carbon tax rebate designs

- Energy efficiency policies
- Grant funding for emissions reduction projects
- Financing assistance for emissions reduction projects
- Research and development into low emissions technologies

Complementary policies
Challenges and Lessons Learned: Policy Interactions and Coordination

✔ Policy interactions and coordination are critical to:

- Avoid overlapping and uncoordinated efforts
- Reinforce each of the policy objectives and ensure their effectiveness
Countries often face significant practical challenges in developing GHG pricing instruments in regard to:

- Data on current and projected emissions
- Technical infrastructure for Monitoring Reporting and Verification of emissions
- Legal rules and procedures for implementation
The EU ETS: Lessons Learned

As a relatively mature scheme, the EU ETS provides numerous lessons for others including:

1. Significant free allowance allocation could lead to the creation of windfall profits → focus allowance allocation on sectors genuinely unable to pass on costs (at risk of carbon leakage)

2. Price volatility can be significant – especially as compliance periods lengthen – serious consideration of price stability mechanisms is warranted

3. The relationship between carbon caps and other policies (energy efficiency, renewables support, etc.) needs careful consideration for cap setting and potential flexibility mechanisms (Market Stability Reserve etc.)

4. Carbon trading practices need to be carefully regulated to reduce fraud risks