International design of carbon pricing (and related issues)

Seminar at the Grantham Institute, Imperial College

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Agenda

• Spread of carbon pricing
• ETSs vs. taxes
• Other design features
• The role of China
• Talking to others

Views expressed in this presentation are those of the speaker only
Carbon pricing is now in place or planned in jurisdictions comprising 23% energy and industry CO$_2$, with about half of these emissions priced.

Note: blue line shows percentage of total emissions in jurisdictions with carbon pricing, the green line shows the proportion of emissions actually priced. Typically carbon pricing schemes price about half of total emissions, although coverage varies a good deal. Question marks indicate legislation not yet enacted. Timing of China pilot schemes remains uncertain. Small taxes in Japan and Mexico are excluded.
Carbon pricing schemes lie on a spectrum of types, but with a preponderance of emissions trading.

Details of other schemes (e.g. other China) remain unresolved but the schemes are trading based.
Many other features of carbon pricing need to be defined, and most will be subject to debate

- Use of offsets (restrictions by total quantity, type and geography)
- Coverage of sectors
- Coverage of gases
- Shielding of industry
Prices have tended to be lower than many expected.

Carbon tax in Sweden is higher – over $100/tCO$_2$.

US EPA estimates of social cost of carbon for 2015 are $12/tCO$_2$ to $117/tCO$_2$. Estimate at 3% discount rate is $40/tCO$_2$. 
A price floor along the lines of the California scheme would help the EUETS provide more efficient price signals

- Price containment reserve taken from within the cap (c.4.5% of the total)
- Allowances released at prices of $40, 45, 50/tCO₂ indexed at 5% + inflation p.a.

- Auction price reserve of $10/tCO₂ indexed at 5% + inflation p.a.
- Allowances held in a reserve may return to the market if price rises above the reserve for two successive quarters
- Limit on number that may return in any one auction
An allowance reserve based on economic activity is also possible
China’s actions alone can shift temperature outcomes by a full degree centigrade

Source: MIT (Paltsev et al., 2012)
China has strong incentives to reduce emissions as consistent with other policy objectives.

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<tr>
<th>Factors directly related to climate change</th>
<th>Wider correlated policy objectives</th>
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<tbody>
<tr>
<td>Concern about effects of climate change on stability, especially due to effects on water and agriculture</td>
<td>Reform looks to move towards a more efficient, service based, less energy intensive growth model</td>
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<td>Costs of carbon abatement are lower than in other jurisdictions</td>
<td>Consistency with other policy priorities, especially local air quality</td>
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<td>China’s own actions can be of sufficient scale to affect climate outcomes</td>
<td>Provincial coordination possible</td>
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<td>May help leverage on actions by other jurisdictions</td>
<td>Fiscal objectives may play a role, especially in the longer term</td>
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Carbon pricing is a not complete policy solution to emissions mitigation

- Incentives and support for development and commercialisation and deployment of new technology
- Regulation of the buildings and transport sector
- Performance standards
- Common infrastructure such as charging networks for EVs
- Assistance for vulnerable consumers, including through revenue recycling
- Education and information
People’s perceptions of climate change risk are strongly shaped by their values.

How much risk does global warming pose for people in our society?

Cultural Worldview: Population Deciles
(each bar 10% of U.S. Population)

Messages can seek to avoid alienating those with hierarchical and individualist values

- Communicating the extent of scientific consensus on climate change rather than the science itself
- Changing perceptions of solutions to limiting climate change
- Choose the right person to give the message
- Framing of the story affects responses around issues that matter to people, like public health and point to co-benefits like warmer homes
- Graphical information more effective than text (full spectrum may be better still)
For further details on some of these issues see Adam Whitmore’s website:

www.onclimatechangepolicy.org