Addressing distributional impacts of carbon pricing – an overview

Dr. Constanze Haug
ICAP Webinar, 19 January 2022
Outline

• Groups affected from carbon pricing /ETS
• Revenue recycling as central strategy for addressing distributive outcomes
• Concluding remarks
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• Revenue recycling as central strategy for addressing distributive outcomes

• Concluding remarks
Groups affected by carbon pricing

- Additional expenses for energy and fossil intensive products
- Economic transition/loss of jobs
- Fair distribution of co-benefits
- Competitiveness impacts
ETS effects on households

- ETS entities pass on carbon cost to consumers -> rising prices for energy (and depending on ETS coverage, fuel)

Effect of higher prices proportional to income

<table>
<thead>
<tr>
<th>Regressive</th>
<th>Progressive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poorer households pay proportionately more than wealthier ones</td>
<td>Poorer households pay proportionately less than wealthier ones</td>
</tr>
</tbody>
</table>

- While carbon pricing in industrialized countries tends to be regressive, it is generally found to be progressive in emerging economies and developing countries (e.g. Ohlendorf et al., 2021; Dorband et al., 2019)

- BUT: energy access and affordability challenges!
Poor household have a lower carbon footprint...

Source: Burke et al., 2020
... and this effect is much more pronounced in the global South

Source: Renner, 2018
…but we still need consider potential development impacts of carbon pricing

- Rising fossil fuel prices may prompt switch back to cooking with biomass

- Carbon pricing can negatively affect diets -> poorest most affected (note: no revenue recycling)

Source: Aggarwal, 2021
Carbon pricing can impact regions differently

Source: Renner, 2018
... as well as urban vs. rural populations

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Outline

- Groups affected from carbon pricing /ETS
- Revenue recycling as central strategy for addressing distributive outcomes
- Concluding remarks
Revenue recycling makes carbon pricing (even more) progressive.

BUT: for ETS, this requires auctioning to generate revenue in the first place!
ETS revenue – the global picture

**TOTAL AUCTION REVENUES, USD BILLION***

<table>
<thead>
<tr>
<th>Region</th>
<th>Period</th>
<th>Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>RGGI</td>
<td>2008–2020</td>
<td>3.8</td>
</tr>
<tr>
<td>EU ETS</td>
<td>2012–2020</td>
<td>80.7</td>
</tr>
<tr>
<td>California</td>
<td>2012–2020</td>
<td>14.2</td>
</tr>
<tr>
<td>Québec</td>
<td>2013–2020</td>
<td>3.5</td>
</tr>
</tbody>
</table>

* as of 31 Dec 2020


**PERCENTAGE OF TOTAL AUCTIONED PERMITS**

Source: ICAP, 2021
Key considerations in assessing revenue recycling options

Are they effective in...

- redistributing cost of the policy away from low-income households?
- preserving the carbon price incentive?
- increasing availability of low-carbon substitutes?
- (improving the efficiency of the tax system?)
- … and not too complex/costly to administer?
<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Strongly progressive</td>
<td>- Potentially costly &amp; complex to administer</td>
</tr>
<tr>
<td>- (Can be) highly visible</td>
<td>- No double climate dividend</td>
</tr>
<tr>
<td>- Reinforces perception of atmosphere as a global public good</td>
<td></td>
</tr>
</tbody>
</table>

**Applied in:** Switzerland
Lowering other taxes

- Increases efficiency of the tax system
- Only reaches tax payers
- Can be regressive

-> needs to target low-income segment to be progressive
Subsidies and transfers

- Increasing social transfers easy to administer & directly compensates price increases
- Subsidies for clean energy and mobility increase availability of low carbon substitutes -> double climate dividend

- Only reaches transfer recipients
- Subsidies need to be means-tested to be progressive

Applied in:
Reduce cost of electricity

- Drives electrification and sector coupling
- Risk of rebound effects

Applied in:
<table>
<thead>
<tr>
<th><strong>Options for using revenue to address inequalities</strong></th>
</tr>
</thead>
</table>
| **Lump-sum payments** | Switzerland (California) | - Very progressive  
- Can be very visible |
| **Lowering other taxes** | Sweden  
British Columbia | - Increase efficiency of the tax system  
- Need to focus on low-income groups |
| **Increasing social transfers** | Germany | - Potentially easy to administer  
- Can be targeted to alleviate hardship cases |
| **Subsidies / infrastructure investments in clean energy and mobility** | California,  
France | - Double climate dividend  
- Subsidies need to be means-tested to be progressive |
Complementary policies have a role in addressing potentially adverse social effects

Public investments in climate-friendly infrastructure

Mitigating energy cost for low-income households

Labour and skills policies for a just transition
International experience shows: carbon pricing can gain and maintain public support if it **addresses adverse distributive outcomes and communicates this effectively.**

Social impacts are more critical when covering some sectors (transport!) than others.

**Visible recycling of carbon revenues** effectively addresses adverse social impacts.

This **requires auctioning** some share of ETS allowances, and also requires **trading off between different policy goals** when using carbon revenue.

**Complementary policies** drive availability/competitiveness of climate-friendly substitution options and help cushion social impacts.
Further reading

Addressing the distributional impacts of carbon pricing policies
Constanza Haas, Alexander Eden and Manzo Monteiro de Coo


Tipping the balance
Lessons on building support for carbon pricing

https://www.adelphi.de/en/publication/tipping-balance
Many thanks for your attention

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Cited research


• Edenhofer et. al. (2019). Optionen für eine CO₂-Preisreform. MCC-PIK-Expertise für den Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung.


Image sources

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