Budget Perspectives 2020: carbon taxes & compensation options

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Ireland faces challenging emissions targets
... unlikely to be met without rise in carbon tax

Introduced by FF/Green coalition in 2010 at €15 per tonne
- Was supposed to double by 2014, but subsequent coalition decided to increase by just €5 and held fixed at €20 since
- Applies only to fuels outside of EU Emissions Trading Scheme

International & Irish evidence that carbon taxes work
- Reduced emissions by 5-8% in British Columbia with little adverse impact on economic activity (Metcalf, 2019)
- Similar conclusion to de Bruin and Yakut (2018), who also find that current level too low to achieve targeted reductions
But concerns that some groups may be disproportionately affected by tax rise

Prompted Oireachtas Committee on Climate Action to call for the government to introduce:

- “specific policy measures to assist those who may not be in a position to immediately transition from fossil fuels, including ... [increases to] tax credits & welfare payments”

This paper examines distributional effects of €10/tonne carbon tax rise in 2020 & possible compensation options:

- Raises extra €210m per year, which consider disbursing as flat-rate lump sum or rise in tax credits/benefit payments

- Take behaviour of households & firms as given to isolate ‘first-round’/immediate effect on households’ incomes
Before compensation, large households and rural dwellers would see largest cash losses.
While lower-income households would see larger losses as % of both income & spending.

<table>
<thead>
<tr>
<th>Decile of equivalised disposable income</th>
<th>€ per week</th>
<th>As % disposable income</th>
<th>As % expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest</td>
<td>€2.50</td>
<td>-0.50%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>€2.00</td>
<td>-0.40%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>€1.50</td>
<td>-0.30%</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>€1.00</td>
<td>-0.20%</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>€0.50</td>
<td>-0.10%</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>€0.00</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>€0.00</td>
<td>0.00%</td>
<td></td>
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<td>8</td>
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<td>0.00%</td>
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</tr>
<tr>
<td>9</td>
<td>€0.00</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>Highest</td>
<td>€0.00</td>
<td>0.00%</td>
<td>-0.10%</td>
</tr>
<tr>
<td>All</td>
<td>€0.00</td>
<td>0.00%</td>
<td>-0.30%</td>
</tr>
</tbody>
</table>
Carbon tax rise would slightly increase energy poverty, but some issues with official measure

‘Core’ measure is spending >10% AHC income on energy
- Would rise from 17.4 to 18.1% before any compensation

But this sensitive to arbitrary income threshold & doesn’t correspond well with subjective measures in other data
- <10% report inability keep their home adequately warm: closer to measures of ‘severe’ & ‘extreme’ energy poverty

... and doesn’t take account of gains from compensation measures that revenues raised could finance
Consider 4 alternative compensation packages

A. Lump-sum rebate
   - Equal sized ‘cheque-in-the-post’ for each household

B. Increase to all income tax credits
   - including €60 rise in current personal tax credit of €1,650

C. Increase to maximum rates of social welfare payments
   - including €174 pa rise in max rate of state pension

D. Increases to both tax credits & welfare payments
   - including child benefit by €26/child pa; tax credits by €25 pa; and state pension by €65 pa
Can leave low-income households on average better off with packages A, C & D, but not B

-0.4%
-0.2%
0.0%
0.2%
0.4%
0.6%
0.8%

Lowest 2 3 4 5 6 7 8 9 Highest

Percentage of disposable income

Decile of equivalised disposable income

C: Social welfare benefits
D: Combination
A: Lump-sum rebate
B: Tax credits
Packages A, C & D also leave most family types **on average** better off.

- **C**: Social welfare benefits
- **D**: Combination
- **A**: Lump-sum rebate
- **B**: Tax credits

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage of Disposable Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single adult</td>
<td>0.0%</td>
</tr>
<tr>
<td>Lone parent</td>
<td>-0.2%</td>
</tr>
<tr>
<td>Couple without children</td>
<td>0.0%</td>
</tr>
<tr>
<td>Couple with children</td>
<td>0.2%</td>
</tr>
<tr>
<td>Retired single</td>
<td>0.4%</td>
</tr>
<tr>
<td>Retired couple</td>
<td>0.6%</td>
</tr>
<tr>
<td>Other</td>
<td>0.0%</td>
</tr>
</tbody>
</table>
... as they do rural dwellers and LA renters

Percentage of disposable income

Rural Urban Owner-occupier Rented from LA Other rented

A: Lump-sum rebate
B: Tax credits
C: Social welfare benefits
D: Combination

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Could also use some revenue on grants etc., but harder to compensate households

![Graph showing the percentage of disposable income across different deciles of equivalised disposable income for different combinations of tax credit and welfare payment increases.]

**Combination of tax credit & welfare payment increases using:**
- **D:** all revenues
- **E:** 75% of revenues
- **F:** 50% of revenues

**X-axis:** Decile of equivalised disposable income
**Y-axis:** Percentage of disposable income
But some important caveats to this analysis

Likely some variation around average within groups

- Saw earlier wide distribution of losses before compensation
- Lack of detailed information on incomes & expenditure in same survey means can only look at average net gain/loss

Take behaviour of households & companies as given

- Only capturing ‘1st round’ impact of tax rise & compensation
- But Lynch & Tovar (2019) show similar pattern holds accounting for expenditure responses by households
- ... and international research suggests ‘source side’ impacts may offset regressive ‘use side’ impacts even before compensation (e.g. Goulder et al., 2018)
Take away: it’s possible to compensate most households for carbon tax rise, but trade-offs:

A. Lump-sum rebate
   - Progressive and clearly communicable, but administratively complex & costly with no boost to economic growth

B. Increase to all income tax credits
   - Likely to yield a ‘double dividend’ of lower emissions and a larger economy, but low-income households loose

C. Increase to maximum rates of social welfare payments
   - Highly progressive, but weakens work incentives for some

D. Increases to both tax credits & welfare payments
   - Progressive, but unclear if would get a ‘double dividend’