PRICING GREENHOUSE GAS EMISSIONS

OECD COP27 Virtual Pavilion: What role for carbon prices as energy market turbulence continues?

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What role for carbon pricing?
Pricing Greenhouse Gas Emissions: Turning Climate Targets into Climate Action

- Tracks how carbon prices, energy taxes and subsidies have evolved across 71 economies between 2018 and 2021
  - Economies covered account for approximately 80% of global greenhouse gas emissions
  - Estimates positive carbon prices resulting from carbon taxes, emissions trading systems, and fuel excise taxes, and negative carbon prices from fossil fuel subsidies

- Carbon Pricing and Energy Taxation Series
  - Brings together Taxing Energy Use and Effective Carbon Rates
A significant increase in coverage of GHG emissions by emissions trading systems

Share of GHG emissions subject to a positive net Effective Carbon Rate, and its components, 71 countries, 2018-2021

<table>
<thead>
<tr>
<th>Coverage</th>
<th>2018</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon tax</td>
<td>5.0%</td>
<td>5.8%</td>
</tr>
<tr>
<td>Emissions trading system</td>
<td>10.3%</td>
<td>19.0%</td>
</tr>
<tr>
<td>Fuel excise</td>
<td>23.9%</td>
<td>23.8%</td>
</tr>
<tr>
<td>Fossil fuel subsidy</td>
<td>22.4%</td>
<td>22.2%</td>
</tr>
<tr>
<td><strong>Net Effective Carbon Rate</strong></td>
<td><strong>32.1%</strong></td>
<td><strong>40.7%</strong></td>
</tr>
</tbody>
</table>
The average Net ECR across all GHG emissions has risen modestly but remains low

Average effective carbon prices in EUR/tCO₂e, by instrument, all 71 countries, 2018-2021, EUR/tCO₂e

<table>
<thead>
<tr>
<th>Price levels</th>
<th>2018</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon tax</td>
<td>0.6</td>
<td>0.7</td>
</tr>
<tr>
<td>Emissions trading system</td>
<td>1.2</td>
<td>3.6</td>
</tr>
<tr>
<td>Fuel excise</td>
<td>13.7</td>
<td>13.2</td>
</tr>
<tr>
<td>Fossil fuel subsidy</td>
<td>1.4</td>
<td>0.9</td>
</tr>
<tr>
<td><strong>Net Effective Carbon Rate</strong></td>
<td><strong>14.1</strong></td>
<td><strong>16.7</strong></td>
</tr>
</tbody>
</table>
Fuel taxes are highest in road transport; explicit carbon prices in electricity & industry

Prices on GHG emissions across 71 countries in 2021, emissions-weighted sector average in EUR/tCO$_2$e (axes) and sector emissions (bubble)
Net effective carbon rates increasingly diverge across countries

Average Net ECR in EUR/tCO$_2$e, by G20 country (ex. Saudi Arabia), 2018-2021
Many of the world’s largest emitters continue to have low carbon prices

Net ECR, average in EUR/tCO2e

China (People's Republic of) 13.0M
United States
Russia
Japan
Brazil

India 6.1M
Indonesia 2.7M
Canada 1.3M
Mexico 1.1M
Australia

Germany 0.8M
South Africa 0.7M
United K... 0.4M
Italy 0.6M

Korea 3.5M
Türkiye 0.5M
France 0.4M
Argentina 0.4M

Note: The chart shows all individual G20 countries except Saudi Arabia. The size of the rectangle indicates a country’s GHG emissions (in kt of CO2e). Darker shades indicate higher carbon prices (country-level average net ECR in EUR per t/CO2e).
Differences across countries partly reflect different carbon mitigation approaches

Effective carbon prices in industry and electricity, by G20 country (ex. Saudi Arabia)

Panel A: Average Net ECR - industry
Panel B: Average Net ECR - electricity
Government responses to the energy price shocks have sometimes reduced effective carbon prices.

Excise tax reductions and subsidies for automotive gasoline in selected countries, in EUR/tCO₂

Last updated: 10 May 2022
Countries should aim to support vulnerable populations through targeted income support…

… while developing alternative energy sources and modes of transport

<table>
<thead>
<tr>
<th>Support for households is costly, but necessary</th>
<th>Price support understandable, but with major limitations</th>
<th>Better targeted support needed</th>
<th>More sustainable long-term policy responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Equity</td>
<td>• Costly</td>
<td>• Income-tested</td>
<td>• Reduce dependence on fossil fuels</td>
</tr>
<tr>
<td>• Energy affordability</td>
<td>• Mutes price signals and can remove some incentives to reduce consumption</td>
<td>• Other factors:</td>
<td></td>
</tr>
<tr>
<td>• Political support for the long-term transition</td>
<td></td>
<td>• Age</td>
<td>• Energy security</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Geography</td>
<td>• Energy efficiency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Patterns of consumption</td>
<td>• Improved networks and infrastructure</td>
</tr>
</tbody>
</table>

https://www.oecd.org/tax/tax-policy-reforms-26173433.htm
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