Co-dynamics of climate policy stringency and public support

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RQs & Model structure

Which policy trajectories and revenue uses allow achieving a predetermined mitigation target while ensuring sufficient public support over time?

Role of peer pressure and income inequality in obtaining public support for climate policy?

- **Policy design**
  Designing an effective policy with sufficient public support in terms of:
  - Stringency of tax or standards
  - Use of tax revenues

- **Policy impacts**
  General equilibrium model calculating policy impacts in terms of:
  - Personal wellbeing
  - Distributional effects
  - Policy effectiveness

- **Policy support**
  Agent-based model calculating policy support, taking into account:
  - Heterogeneous perceptions of impacts
  - Opinion dynamics

Update Policy
Policy design

- Two policies: efficiency standards and carbon taxation

- Three uses of carbon tax revenues:
  - Progressive transfers
  - Labor tax reduction
  - Green spending

- Increase rate if 50%+ support the policy, freeze rate otherwise
Policy impacts

- GE with two firms (Klenert et al., 2018; Jacobs and van der Ploeg, 2019)

- Households with heterogeneous productivity and carbon intensity of consumption (Buchs and Schnepf, 2013)

Impacts on
  - personal wellbeing: variation in utility
  - distributive effects: changes of the utility distribution
  - policy effectiveness: comparison between emissions and remaining carbon budget
The weights of policy indicators on support estimated from survey data (Maestre-Andres et al., 2021) and depend on political ideology of agents.

Agents are influenced by their peers in a social network: richer agents have higher influence because of more ties (Gilens and Page, 2014; Berthe and Elie, 2015).

Agents are resistant to change their initial support about the policy (Howe and Krosnick, 2017; Douenne and Fabre, 2019).
Main results

### Carbon tax with:

<table>
<thead>
<tr>
<th>Policy</th>
<th>Maximum support</th>
<th>Maximum well-being effects</th>
<th>Maximum distributional effects</th>
<th>Maximum effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Progressive recycling</td>
<td>0.76</td>
<td>0.58</td>
<td>0.64</td>
<td>1</td>
</tr>
<tr>
<td>Labor tax reduction</td>
<td>0.66</td>
<td>0.49</td>
<td>0.46</td>
<td>1</td>
</tr>
<tr>
<td>Green spending</td>
<td>0.62</td>
<td>0.30</td>
<td>0.49</td>
<td>1</td>
</tr>
<tr>
<td>Standards</td>
<td>0.65</td>
<td>0.47</td>
<td>0.46</td>
<td>1</td>
</tr>
</tbody>
</table>

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(a) $\delta = 0$

(b) $\delta = 0.5$
Outlook

- More surveys that link impacts of climate policies to their support, incl. data before and after an increase in policy stringency and testing the relation in different country contexts.

- Allow for biased perception of policy impacts due to media framing or incomplete information from social networks.

- Consider policy mixes instead of single policies.