Mercator Research Institute on
Global Commons and Climate Change gGmbH

Making carbon pricing effective:

The role of social acceptance, financial markets, global trade, and international climate treaties

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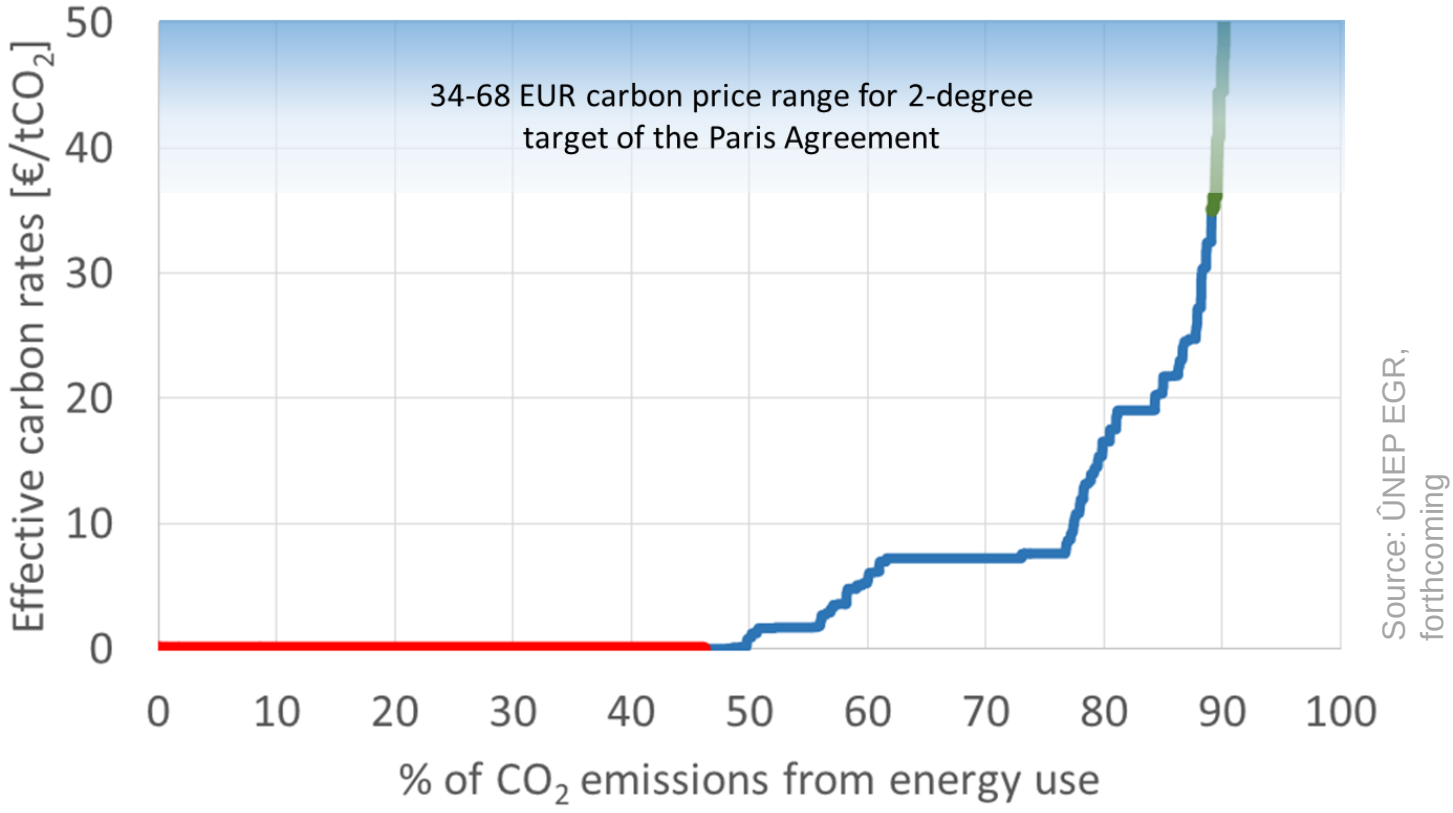
Political economy: Why do we care?

- First best policies (such as carbon pricing) still seem to be difficult to implement in the real world



Why study political economy?

- Inertia to energy system transformation can be expected due to political resistance:
  - Broad-based resistance, e.g. to rising energy prices
  - Immediate price increases can lead to large protests that have the power to stop the reform; short term distributional incident crucial for the acceptance of reform

- Interests groups that lose from policy reforms can be expected to lobby against it (Arent et al. 2017; Trebilock 2014; Sovacool et al. 2016 …)
  - Workers
  - Fossil fuel owners
  - Industry
  - Energy users

Energy transitions are not only an economic issue but heavily depend on politics.
Who would be affected how by climate policy, and how can these actors support or block policy formulation and implementation?

Political economy: Relevant questions

- **What are distributional effects of policy reforms? How can they be made socially acceptable?** → *see first talk*
- The role of financial markets
- The role of international trade
- How to ensure long-term credibility of policies?
- How to account for social norms?
- What are vested interests and existing power structures? How can they be overcome?

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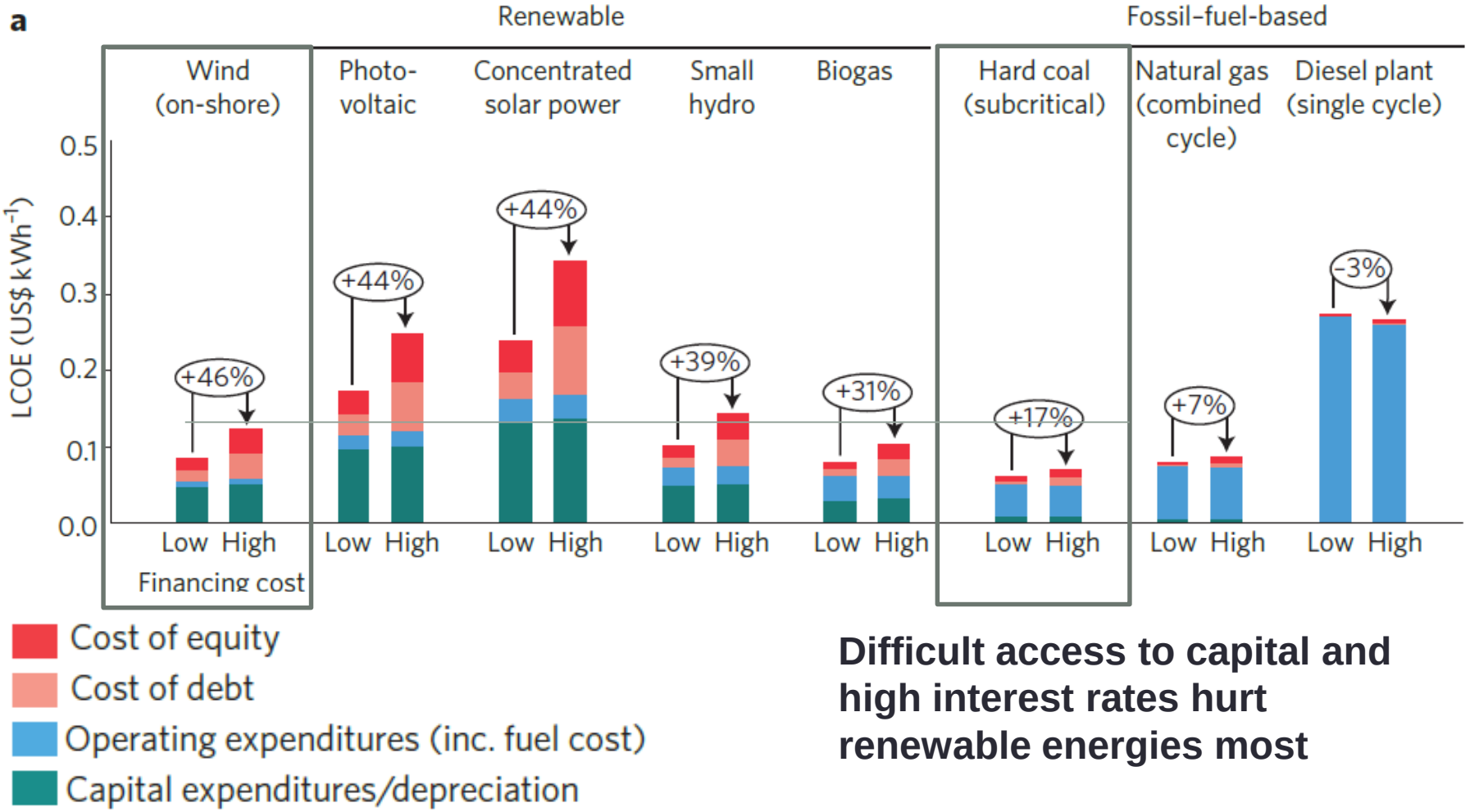
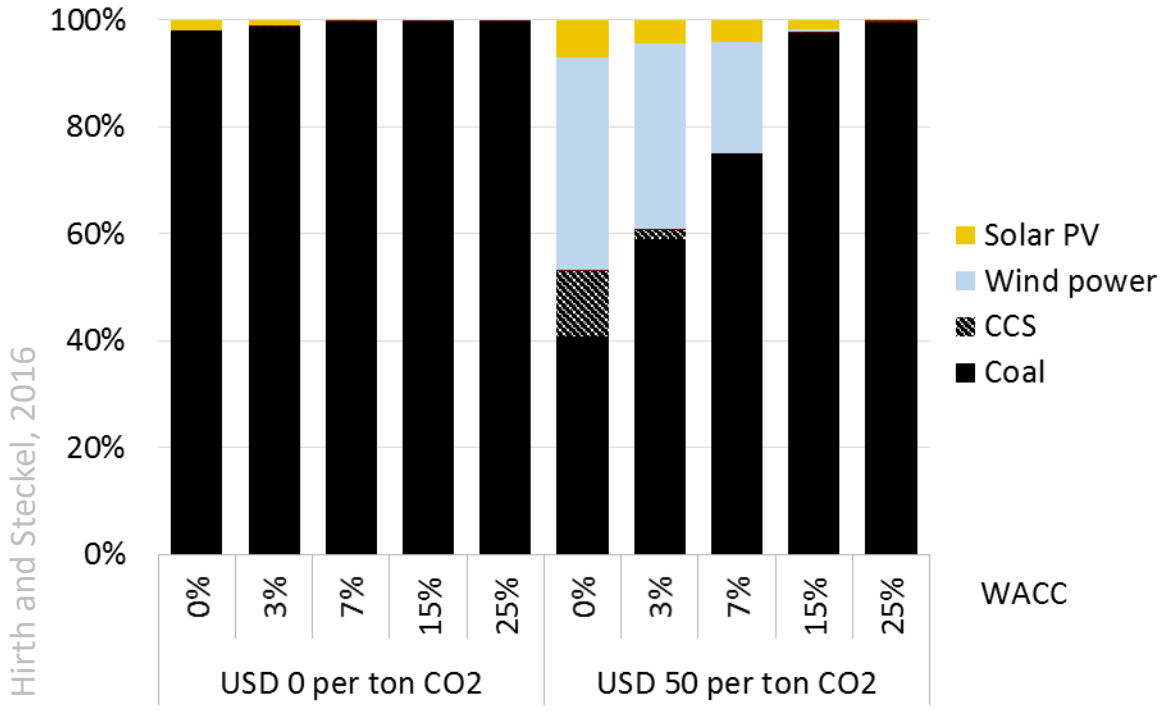
Important to account for differences in capital costs



Difficult access to capital and high interest rates hurt renewable energies most

High capital costs vs. carbon pricing

When capital costs are high, even high levels of carbon pricing will not lead to a phase out of coal!



Instruments

Table 1
Measures for policy de-risking and financial de-risking on the national and international level.

	National	International
Policy de-risking		
Flexible rules	Carbon price collars	Baselines and reduction commitments that reflect country-specific capabilities and circumstances; capacity building
Increased transparency	Monitoring and reporting of progress towards national climate targets; financial disclosure	Peer-review; capacity building
Political economy and distribution	Create winning coalitions; compensate losers	Climate finance to expand social security
Robust policy design	Align climate policies with other national policy objectives; employ overlapping policies	Harmonize climate and SDG agendas; Climate finance as a commitment device
Financial de-risking		
Green bonds	Portfolios of green bonds; improve standardization of green bonds	International financial institution buying green bonds, providing interest rate subsidies or preferential loans; financial intermediation; developing internationally harmonized definitions
Loan guarantees	Guarantee provided by the government in which investment takes place	Guarantee by international financial institution; export credit guarantees
Policy risk insurance	Adjust regulatory frameworks	Provision of policy risk insurance by international financial institution

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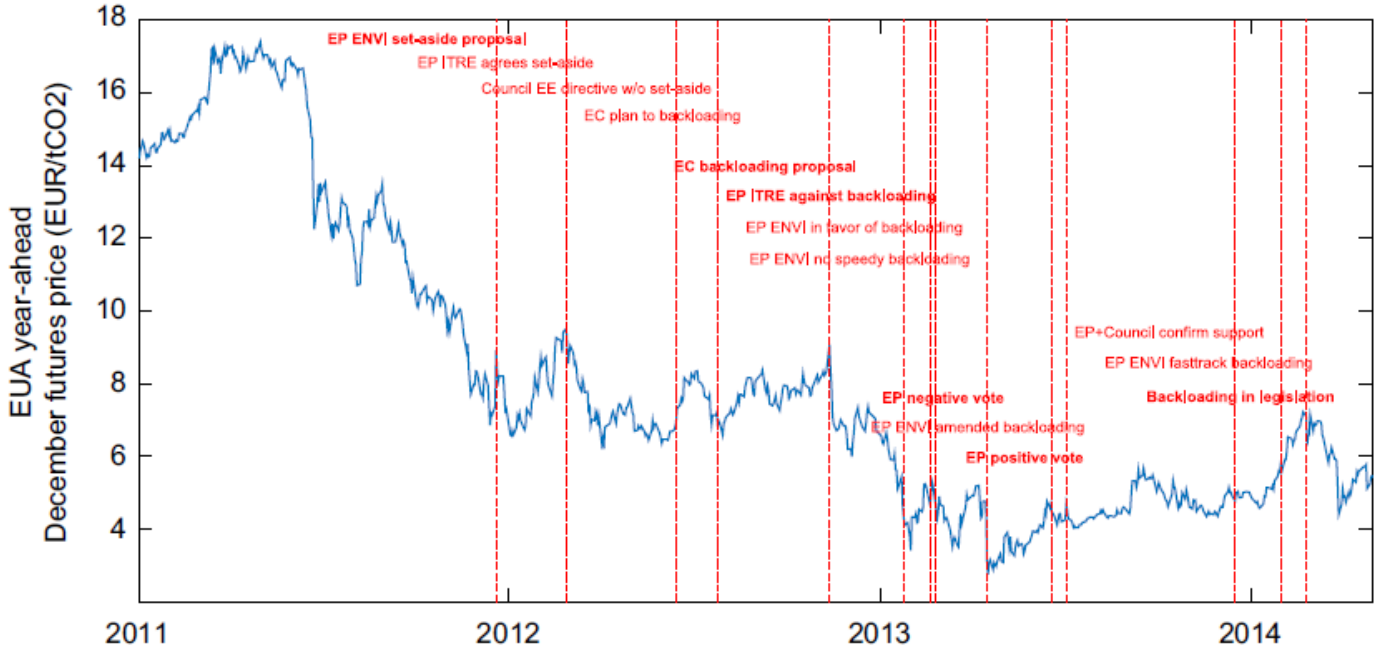
The importance of credibility: The EU ETS

- Prior to recent reforms, ETS had become a betting shop for policies; only 10% of the observed price drop could be explained by market fundamentals
- Political events drove the price of the EU Emissions Trading System

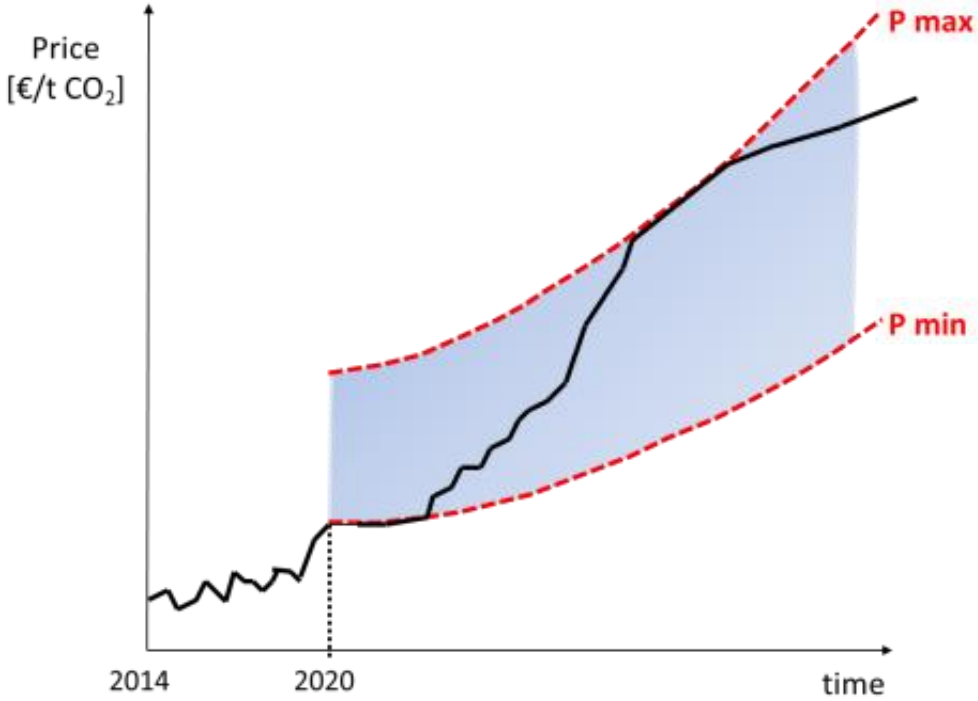


How to ensure credibility

- Commitment devices
  - Constitutional state of carbon pricing
  - Carbon central bank
  - Pre-defined “menue“ on tax rates (e.g. depending on technological availability)
  - In an ETS: Price floor / ceiling

A price collar as a commitment device

- Anchor investor expectations
- Expression of firm policy commitment
- In addition: floor price reduced waterbed effect



Edenhofer (2014)

Source: Christian Flachsland, HSG

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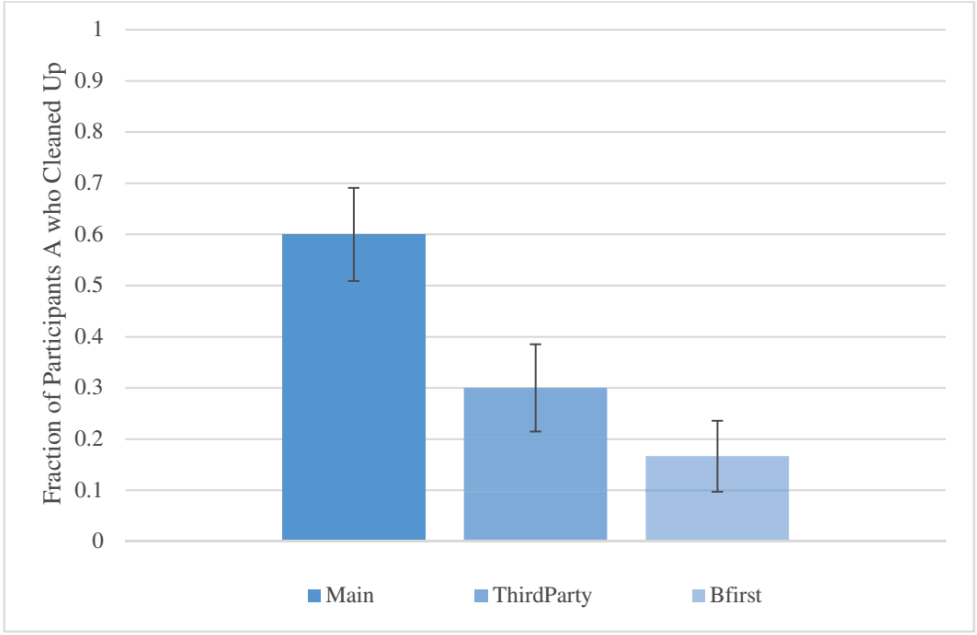
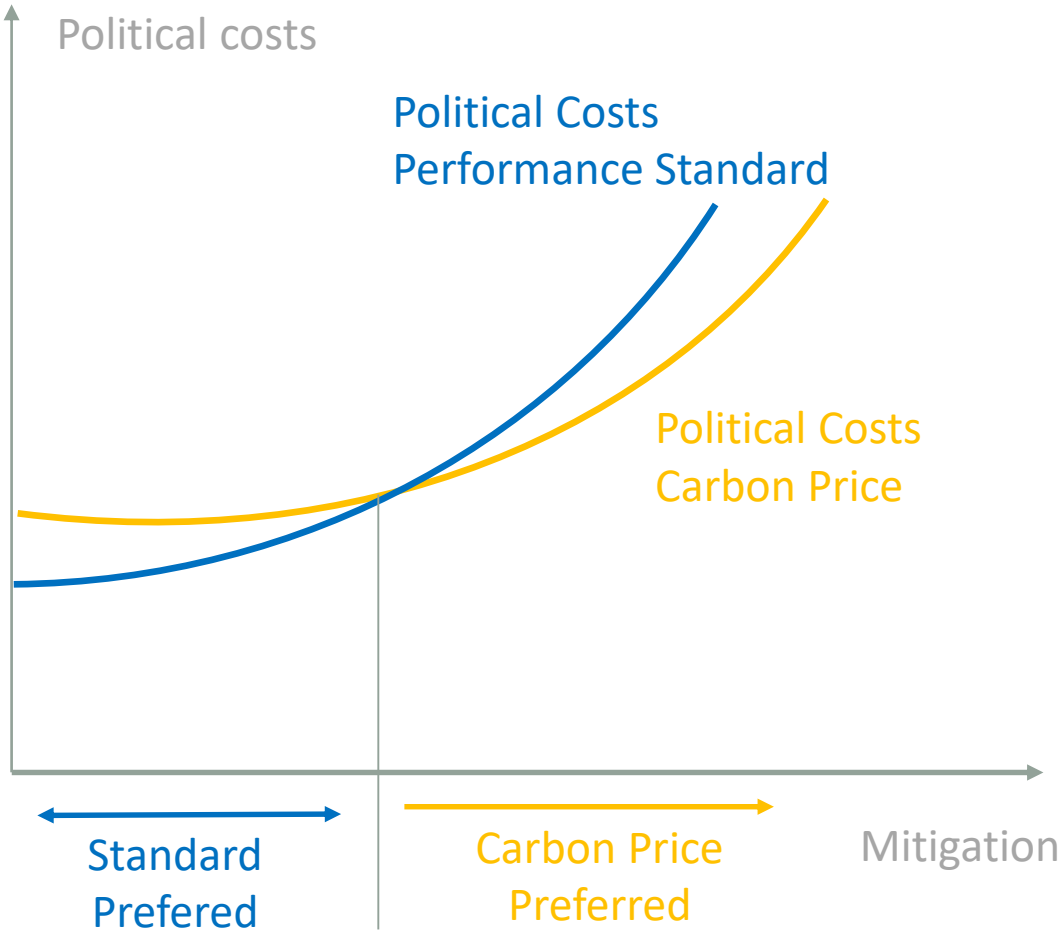
Policy instruments need to be embedded in local social norms and moral responsibilities

- In a lab experiment people prefer to clean up their own pollution, reducing economic efficiency
- They prefer to be personally involved in cleaning pollution they are responsible for and are willing to accept real economic losses
- Implication: people consider emissions trading to be morally inacceptable compared to taxing



Behavioral Aspects: Salience



- Political costs (PC) are a function of salience (SC) and mitigation costs.
- Command and control instruments have lower salience, but higher mitigation costs than market-based instrumtents.
- Hence, command and control instruments have lower political costs for low mitigation targets.

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Power structures and vested interests can impede transitions

- Vested interests in developing countries impede necessary policy reforms:
  - Vietnam: High ranked officials in electricity regulator and (state owned) utility profit personally from building coal

  - Indonesia: Presidential campaign has and will (in 2019) largely depend on coal industry, an important contributor to the national and provincial public budgets

  - India: Coal is an important employer and source of public funds, cross-subsidizing mechanisms (e.g. railways) make policies that tackle existing (or future) coal politically difficult

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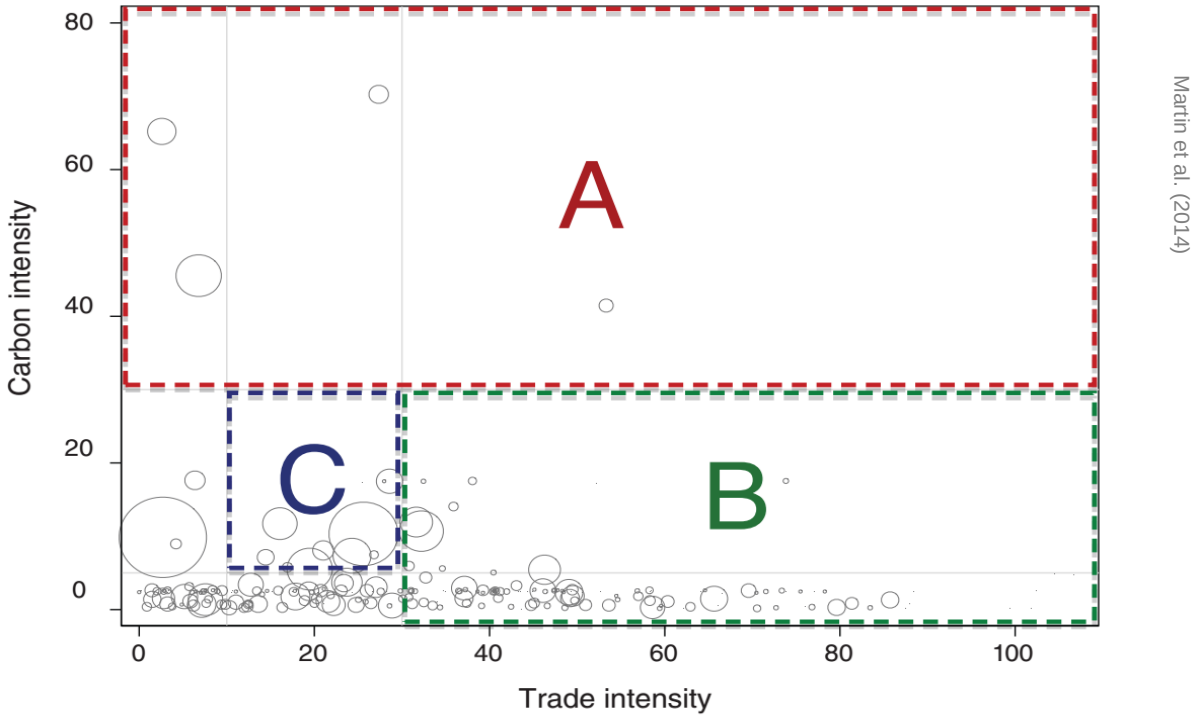
Risk of Carbon Leakage

- ‘Carbon leakage’: re-location of emitting activities from a regulated area to unregulated area.
- So far hardly any empirical evidence of leakage for UK Climate Change Levy and EU ETS (Martin et al. 2014, Koch & Basse Mama 2019):
- Emission prices in the EU ETS have been relatively low for the period under consideration, and many firms have received free allocation of permits.
- Energy price differences only explain a small part of trade (Sato and Dechezleprêtre 2015, Aldy and Pizer 2015).
- Model projections for expected future effects range from negative leakage rates to more than 100%.
- However, the large majority of studies finds rates of 5% to 20%, with a mean of 14% (Branger and Quirion 2014).
- Hence, leakage can be expected to be relevant, but unlikely to make unilateral climate policy ineffective.

EU ETS: Free allocation of permits

- 100% free allocation to all sectors meeting one of following criteria:
  - non-EU trade intensity > 30%, OR
  - carbon intensity as % of GVA > 30%, OR
  - both trade intensity >10% AND carbon intensity as % of GVA >5%
- Benchmarks to determine free allocation volumes (10% most efficient firms in sector)
  - From 2021, production data update each year
- Industries not on carbon leakage list: free allocation reduced from 80% to 30% of emissions 2013 to 2020, and from 30% to 0% from 2026 to 2030.
- On average, 43% of cap available for free allocation in Phase III.
- Power price-increase compensation to energy-intensive industries.

Problems with Free Allocation of Emission Permits



- Energy-intensive firms are at risk of carbon leakage, but not trade-intensive ones -> overallocation.
- Economically optimal allocation of emission permits:
  - To those firms where it most effectively reduces leakage risk
  - But: how to implement this practically, and prevent political interference?

Border Carbon Adjustments

- Levy domestic carbon price on 'emissions embodied in imports' to level the 'carbon playing field'.
  - Implementation complex, would require lifecycle analysis for all imports.
  - 'Full' BCA: also reimburse emission price to exporters.

- Legal considerations under WTO law (Horn and Mavroidis 2011):
  - Applying a border tax to domestic as well as foreign products in a non-discriminatory manner.
  - GATT Art. XX allows for trade restrictions if these help to protect environmental quality.
  - Non-discrimination tricky, might require 'best available technology' assumption, which would substantially decrease the effectiveness of BCA.

- Relationship to EU ETS (Cosbey et al. 2019):
  - Reimbursing emission price to exporters (full BCA) illegal
  - With BCA, free allocation of emission permits very likely illegal.

Alternative Trade Policies

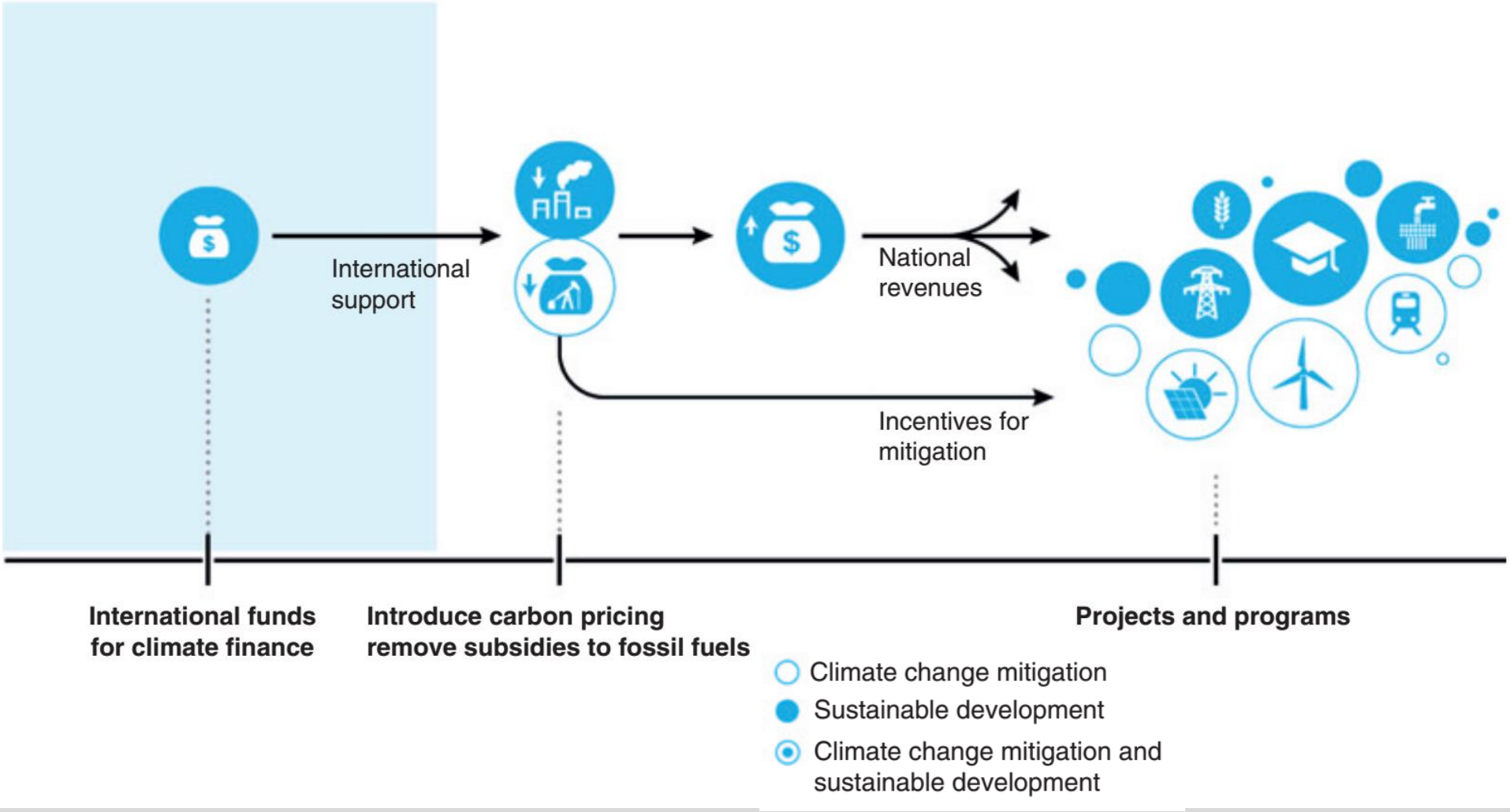
- BCA is economically inefficient (Jakob et al. 2013):
  - BCA puts a price on exports to countries applying it, but leaves other activities unpriced.
  - Hence, it induces a shift from priced to unpriced activities.
  - BCA could even increase carbon leakage.
  - Economically optimal carbon tariff depends on substitution between activities and relative carbon intensities. Hard to implement in practice.

- Pragmatic alternative (Jakob, Steckel and Edenhofer 2014):
  - Only focus on few energy-intensive sectors.
  - Use empirics and model studies to determine shift from priced to unpriced activities.
  - Negotiate with third countries to implement export tariffs.
    - These would provide some incentives to firms as import tariffs.
    - But revenues would remain in the country, don‘t shift mitigation costs on poor regions.
    - No risk of incompatibility with WTO law.
    - Examples: Voluntary export restraints on Japanse cars, China has applied export tariffs on energy-extensive products.

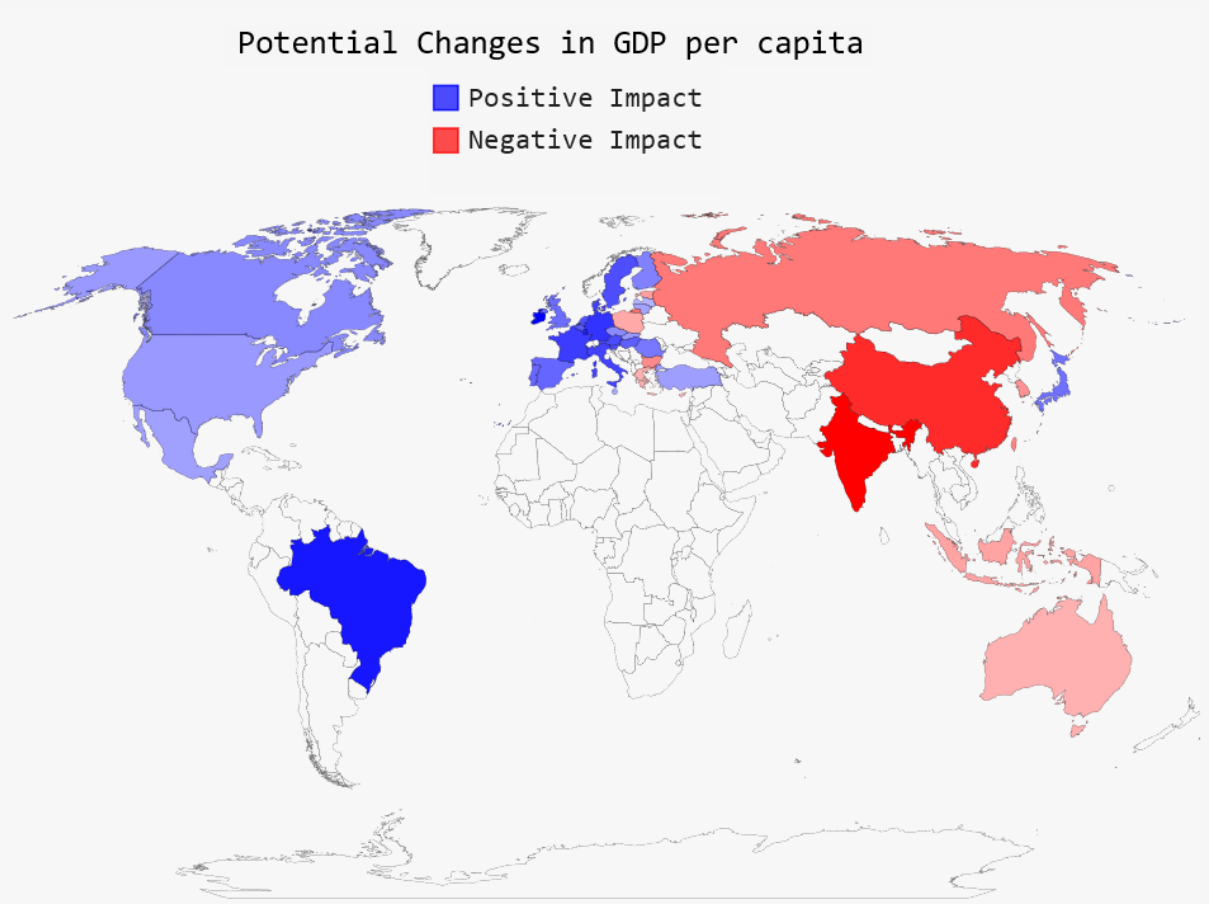
Expanding Climate Policies

- With more ambitious climate policy in other regions, less risk of carbon leakage.
- Article 6 in Paris Agreement: International Flexibility Mechanisms
- Possible entry points:
  - Sectoral approaches, technology transfer to energy-intensive industries (Ahman et al. 2017).
  - Linking sectoral emission trading schemes (Flachsland et al. 2009).
  - Financial and administrative support for carbon pricing (Steckel et al. 2017).
- Some related policy initiatives:
  - World Bank Partnership for Market Readiness.
  - Carbon Pricing Leadership Coalition.
  - International Carbon Action Partnership ICAP.

Expanding Climate Policies



Competiveness effects



- A global carbon price would lead to changes in international productivity and hence competiveness.
- While Western countries would generally benefit, countries of the global South would likely lose.
- Consequences for lobbying

Note: Results range from -3% (India) to +1% (Ireland)

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Thank you.

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Policy implications if governments cannot commit

	Perfect commit ment	Imperfect committ- ment	Political economy
Government is committed	Yes	No	No
Government is credible	Yes	Yes	No
Optimal tax	$\tau = \tau^a$	$\tau \neq \tau^a$; $\tau^a = \tau^e$	$\tau^e = \tau$

- In an analytical political economy model including lobbying opower a Pigouvian tax is not optimal
- The political economy forces make the optimal policy time inconsistent (i.e. perfect commitment needed)
- With rational expectations and without commitment, there are only two time-consistent policies, a prohibitive tax or no climate policy