



IMF

Fiscal Affairs Department

Border Carbon Adjustments Rationale and Background

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Overview

- Context and rationale for BCA
- Design and implementation issues
- BCA vs alternative mechanisms

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- **Context and rationale for BCA**
- Design and implementation issues
- BCA vs alternative mechanisms

Border carbon adjustment: what and why?

In standard form, BCA would apply domestic carbon price to “embodied” CO2 emissions in imports. It may also involve rebates of carbon prices paid on goods for export (like VAT border adjustment).

Rationales - when domestic industry faces carbon prices significantly higher than in trading partners:

1. Preserve **competitiveness**

- Especially relevant for energy-intensive, trade-exposed (EITE) industries
- Can aid the domestic political acceptability of carbon pricing

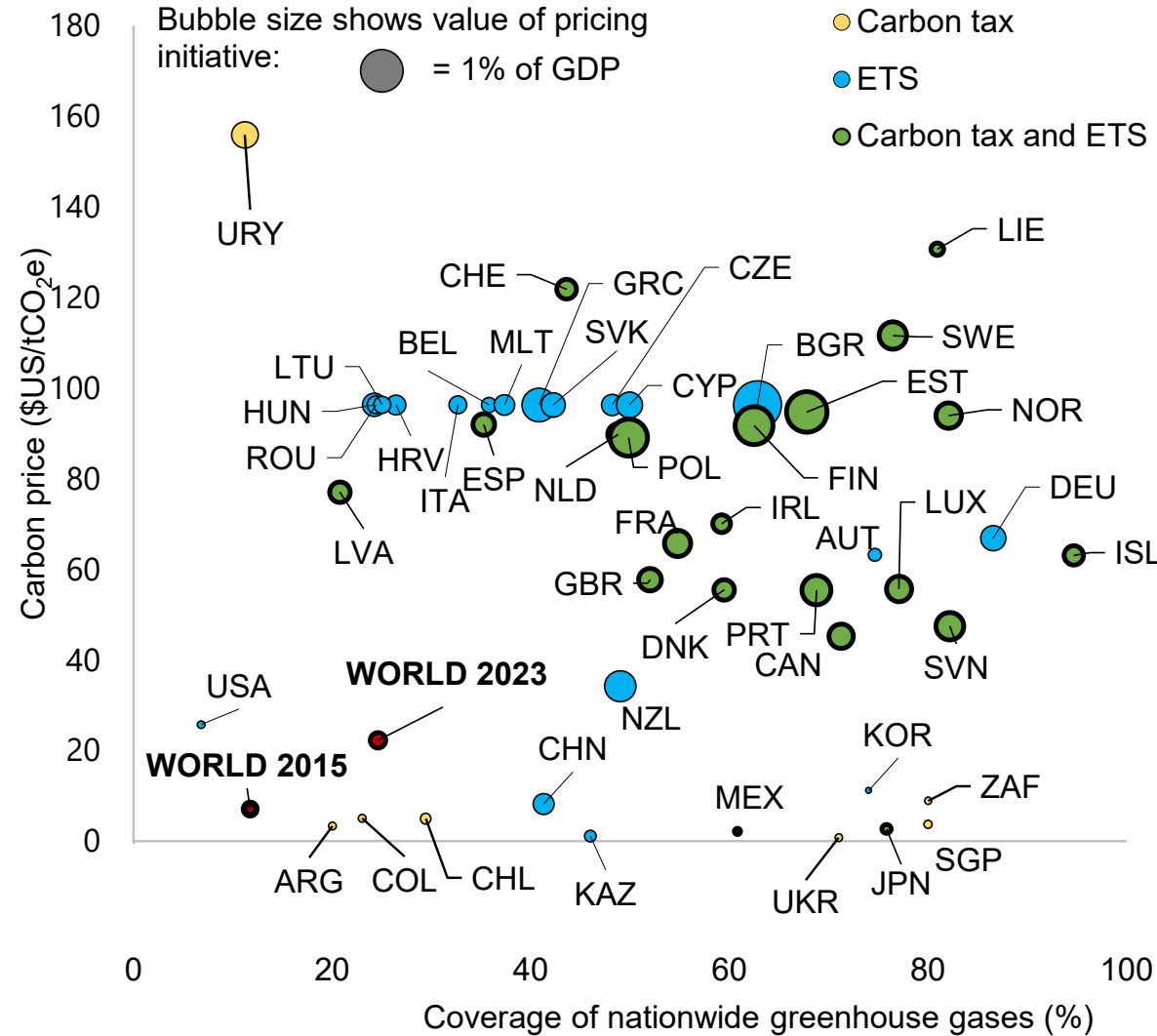
2. Reduce risk of “**carbon leakage**”

- Leakage is when production shifting abroad raises foreign emissions, offsetting domestic emissions reduction

3. Encourage **carbon pricing abroad**

- Direct financial incentive (modest)
- Demonstration/credibility effect

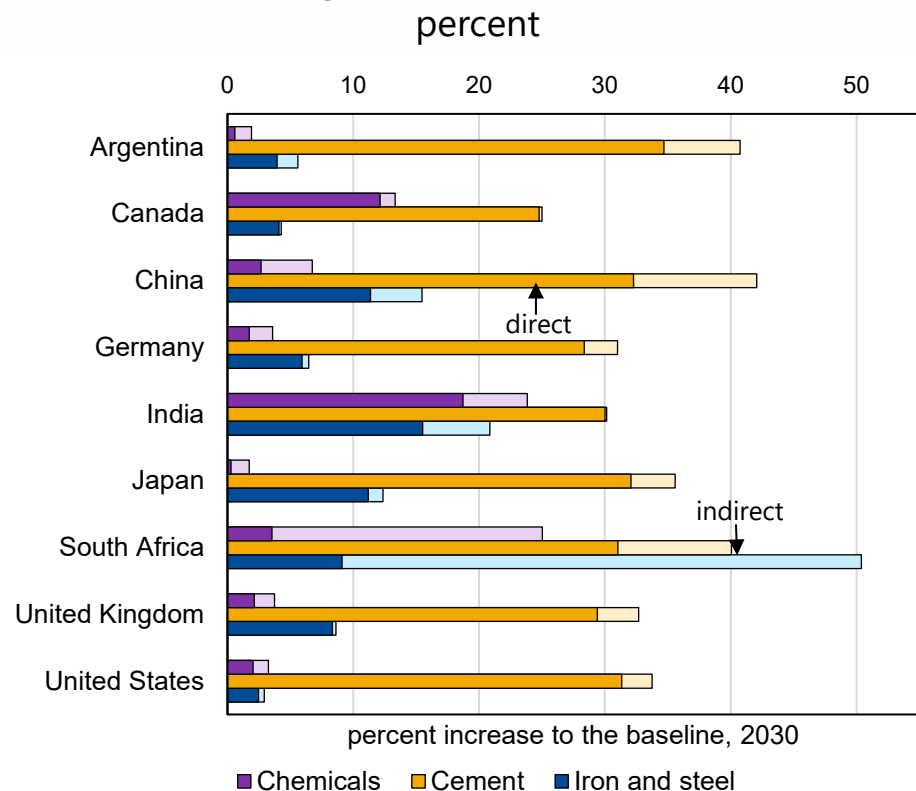
Heightened interest due to diverging carbon prices



Source: IMF staff based on World Bank (2024)

1. Estimated cost increases from carbon pricing

Input price changes for \$50/tCO₂ carbon tax, 2030



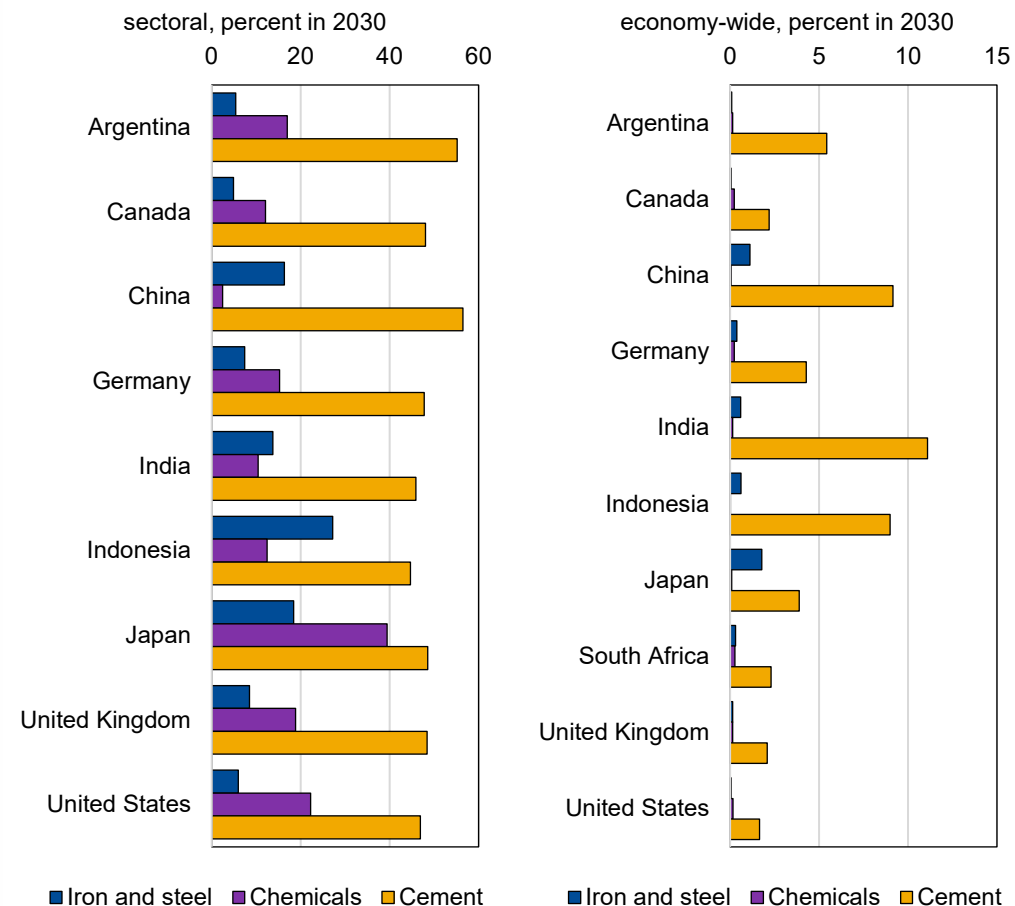
Source: IMF staff

- Estimated cost increases vary widely by country and industry
- Considerable uncertainty over extent to which cost increase affect competitiveness in practice
 - Empirical studies generally fail to identify competitiveness effects of carbon pricing but focus on periods with smaller policy differences
 - May be some potential to pass on costs in domestic prices

2. Leakage - estimates

- Wide range of estimates
- Leakage depends on:
 - Emissions reductions from reduced production instead of improved emissions-intensity
 - Reduced production that shifts abroad
 - Emissions-intensity of foreign production relative to domestic
- Leakage usually considered lower at national level than EITE industry (EITE is typically less than a quarter of national emissions)
- Higher for small open economies

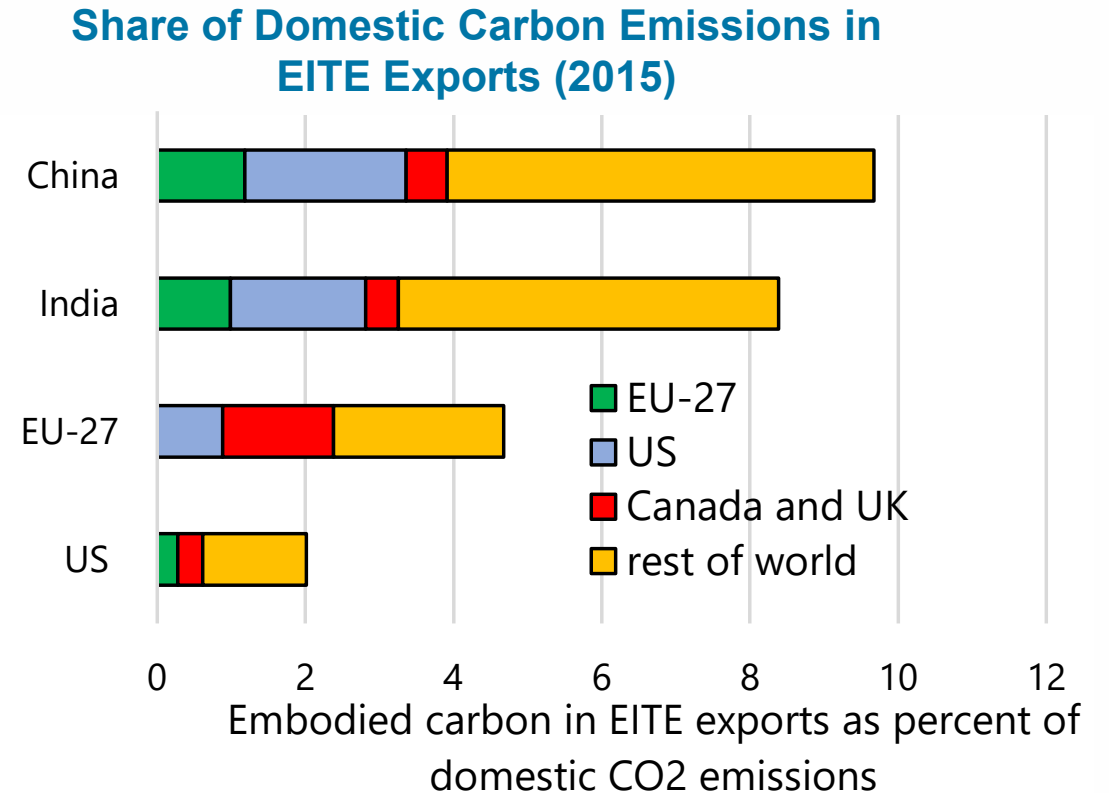
Estimated Sectoral and Economy-wide Carbon Leakage Rates



Source: IMF staff

3. Promoting carbon pricing abroad

- Raising carbon pricing in exporting country would transfer BCA revenue to national government
- But financial incentives for broad carbon pricing seem modest given small shares of EITE exports in overall emissions
- BCAs may raise credibility of carbon pricing more generally and galvanize debate in trading partners



Source: OECD (2021).

Overview

- Context and rationale for BCA
- **Design and implementation issues**
- BCA vs alternative mechanisms

Key design issues – “devil in details”

Coverage – scope by industry and type of emissions?

Measurement – how to assess carbon embodied in imports?

- Firm-level emissions
- Foreign industry emissions-intensity benchmarks
- Domestic industry emissions-intensity benchmarks

Exports – rebates for carbon charges paid?

Revenues – how much and how to use?

Coordination – how to reflect trading partners’ mitigation policies?

- Reduce charges for carbon pricing abroad, or mutual BCAs with export rebates?
- What about regulations and other non-pricing mitigation policies?

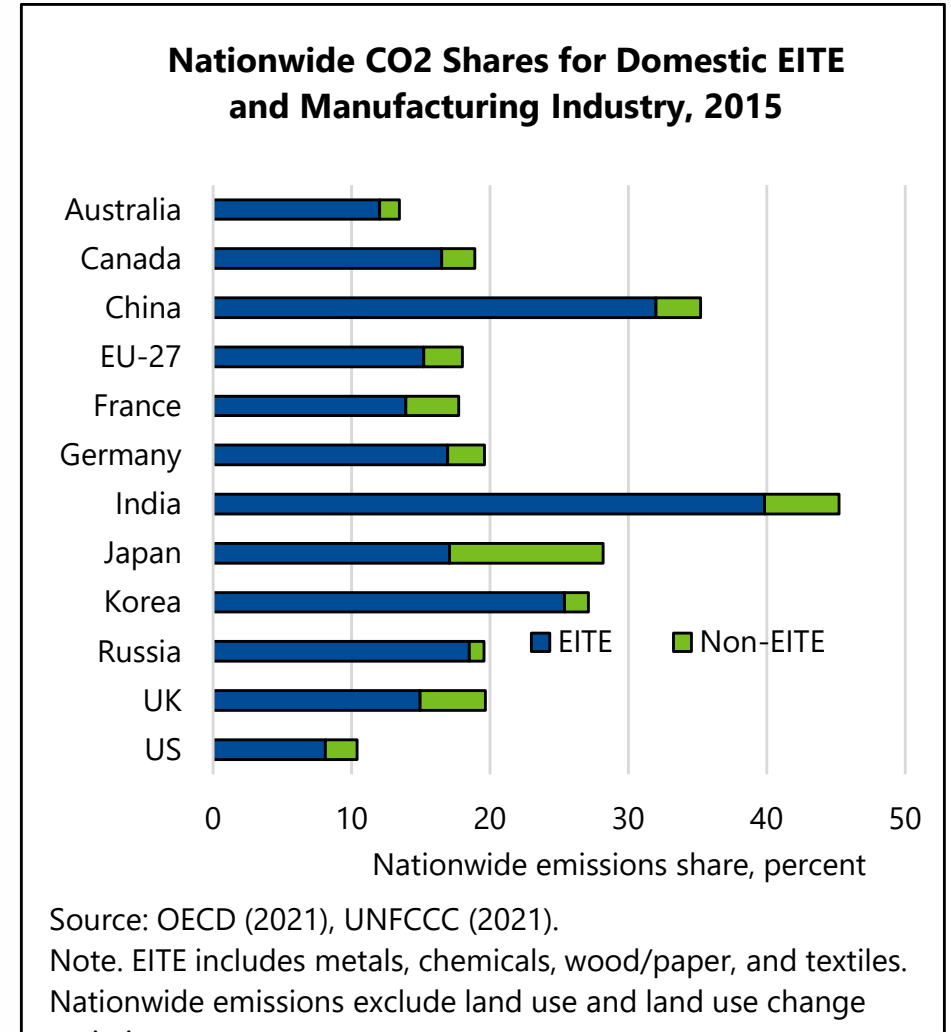
Design Issues (1): coverage

Sectoral coverage

- EITE only (rather than other manufacturing, services, mining, agriculture)
 - 80% of manufacturing emissions; limits administrative burdens; embodied carbon reliably measured; relevant for reforming existing competitiveness measures.

Import tariff vs. allowance purchase requirement

- Purchasing from domestic ETS puts upward pressure on prices → separate allowance pool with aligned prices



Design Issues (2): Measuring Embodied Carbon

Include both direct and indirect (embodied in electricity) emissions

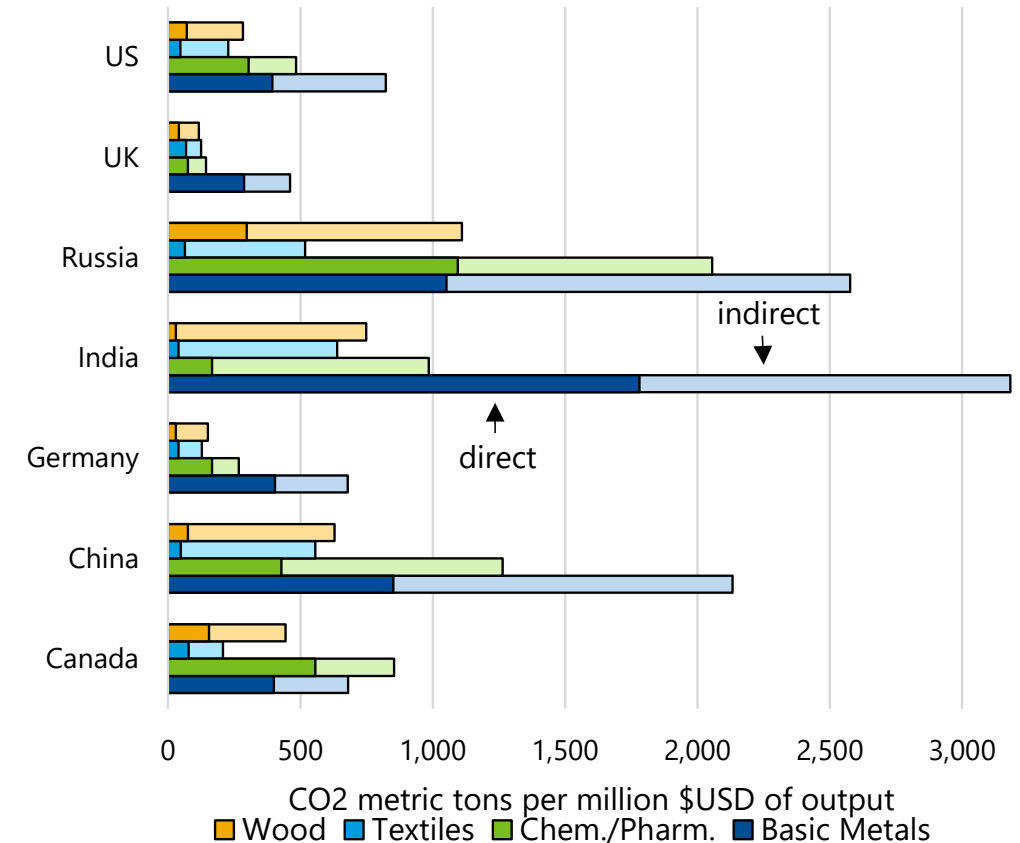
Firm level

- Most efficient (given heterogeneity) but might be difficult administratively (low capacity)

Industry level

- Country-specific benchmarks are efficient
- But pragmatic case for domestic benchmarks initially to limit admin. and EME burdens

Embodied Carbon by Sector and Country, 2015



Source: IMF (2021b).

Design Issues (3): exports and revenues

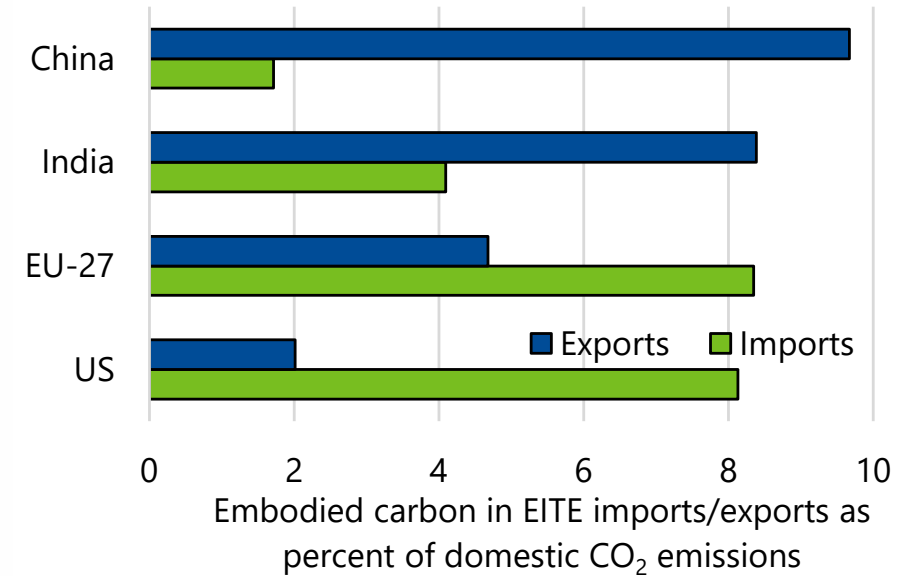
Export rebate

- Warranted on competitiveness grounds
- May reduce net emissions
- Base on domestic industry emissions

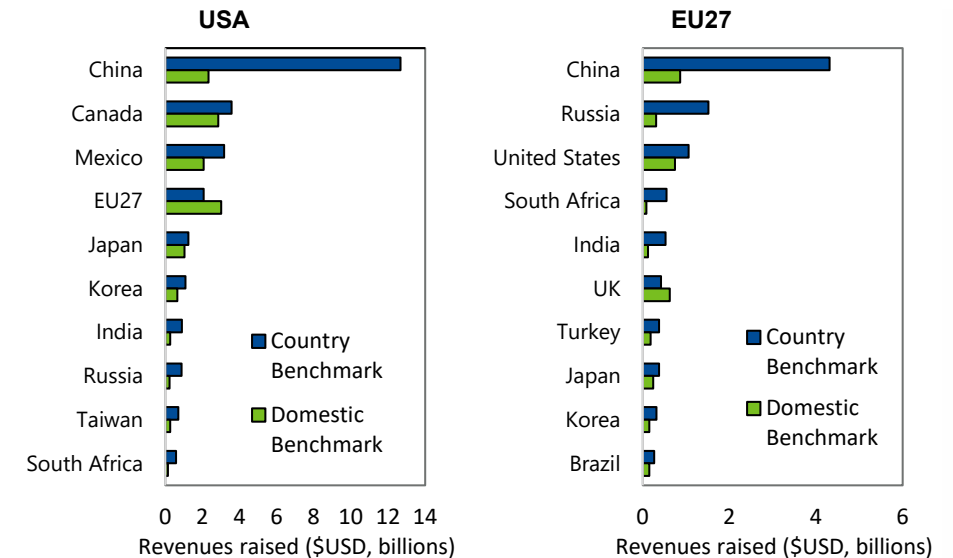
Revenue use

- Green investment, just transitions, climate finance may help with WTO
- But revenue not large—0.1-0.2% GDP for \$50 carbon price before (i) export rebates (ii) adjusting for foreign pricing

Embodied Carbon in EITE Imports and Exports, 2015



Potential Revenues from \$50 BCA on EITE Imports by Trading Partner, 2015



Design Issues (4): coordination

Adjusting BCA charges for carbon pricing abroad appropriate for competitiveness/leakage

- Price on electricity/industrial CO₂ can be used
- Or separate BCA schemes with export rebates
- Adjusting for non-pricing policies questionable (on conceptual, admin. grounds)

LICs—can exempt from BCA as

- Little at stake (2% of embodied carbon in EU imports)
- May be consistent with WTO Enabling Clause (if based on objective development indicators)

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BCAs compared to alternatives

Mechanism → Metric ↓	Non-trade measures				Trade measures
	Exemptions under carbon tax	Free allowances under ETS	Recycling (in output-based rebates)	Feebate/performance standard	Border adjustments
Preserve EITE competitiveness	Partially	Partially	Partially	Partially	Yes (if foreign emissions intensity \geq domestic intensity)
Limit carbon leakage	Partially	Partially	Partially	Partially	Yes
Mitigation incentives	Reduced incentives for zero-emission investments	Can slow exit of polluting firms (as they lose free allowances)	Limits production responses	Limits production responses	Maintains all incentives
Revenue implications	Forgoes carbon pricing revenue	Forgoes carbon pricing revenue	Forgoes carbon pricing revenue	Forgoes carbon pricing revenue	Preserves carbon pricing revenue
Political difficulty from higher consumer prices	Minimal price effect	Minimal price effect	Modest price reduction	Modest price reduction	Carbon pricing largely passed through
Extra administrative burden	Modest	Modest	Modest	Modest	Significant
Risk of WTO challenge	No	Could be challenged as subsidy but has not happened yet	No	No	Significant
Equity principles of the Paris Agreement	na	na	na	na	Significant if advanced countries impose measure
Reduction in global emissions	Not effective	Not effective	Not effective	Not effective	May encourage pricing in trading partners

Relationship of BCAs to International Carbon Price Floor (ICPF)

ICPF far more effective/efficient than regime of unilateral BCAs

- Prices all emissions (rather than just embodied in trade flows)
- Exporter faces single rather than multiple prices across trading partners

BCAs may be stepping-stone to ICPF

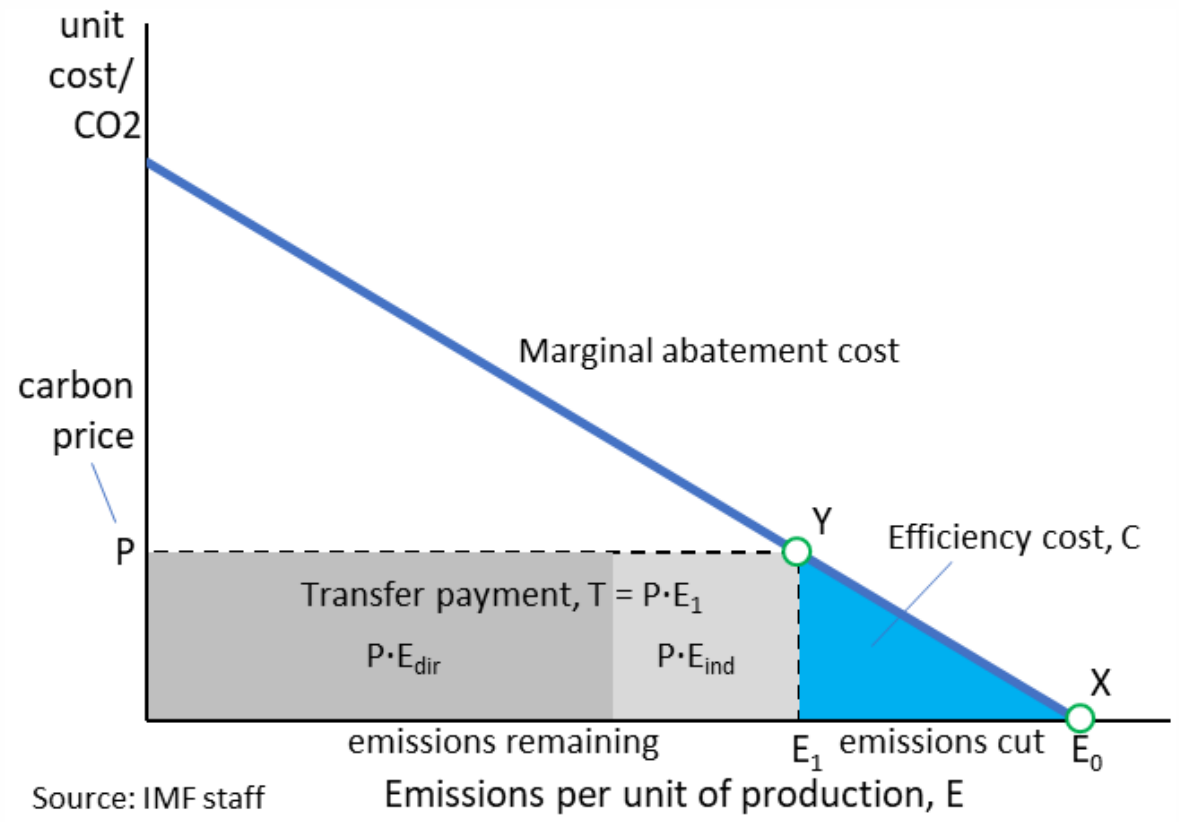
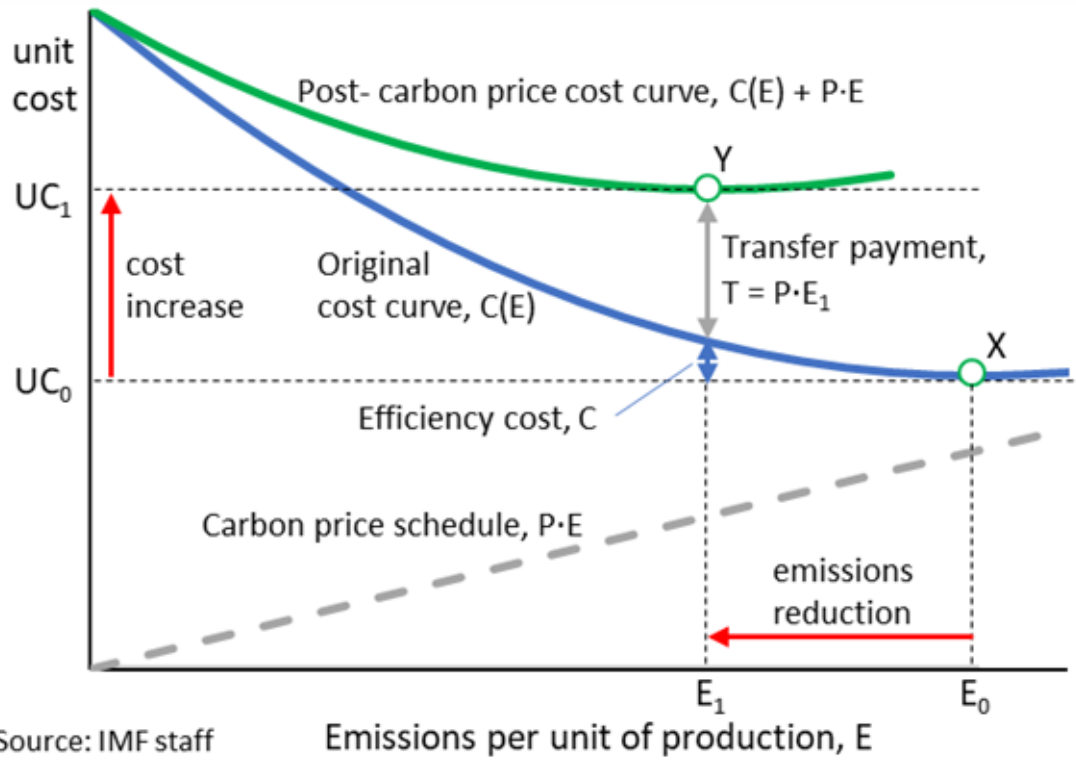
- May also be enforcement mechanism for ICPF but complicates its design



Thank you.

<https://www.imf.org/en/Topics/climate-change>

Competitiveness



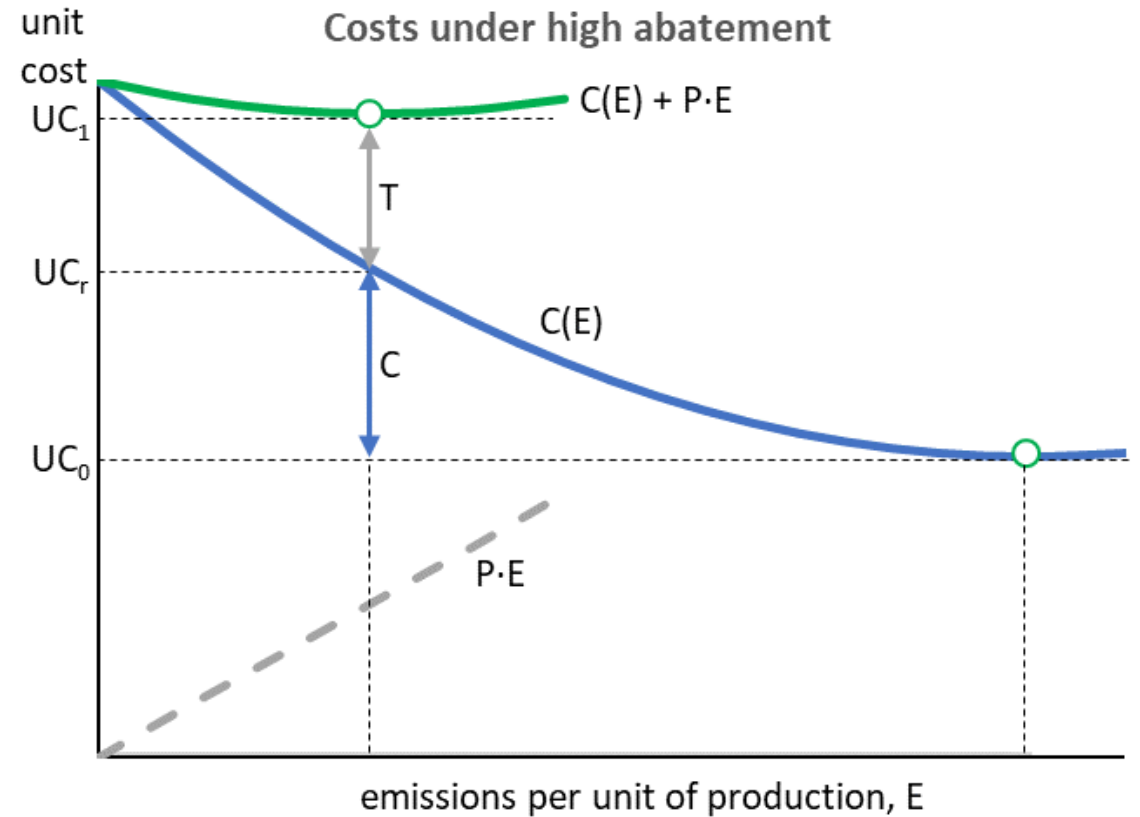
BCAs and non-price mitigation policies

1. Domestic country uses regulations, no mitigation abroad:

- Cost imposed by shadow carbon price much less than by actual price
- Leakage probably less a concern too
- Standard BCA on foreign emissions content not warranted
- But some form of compensation might be needed, especially at high abatement levels

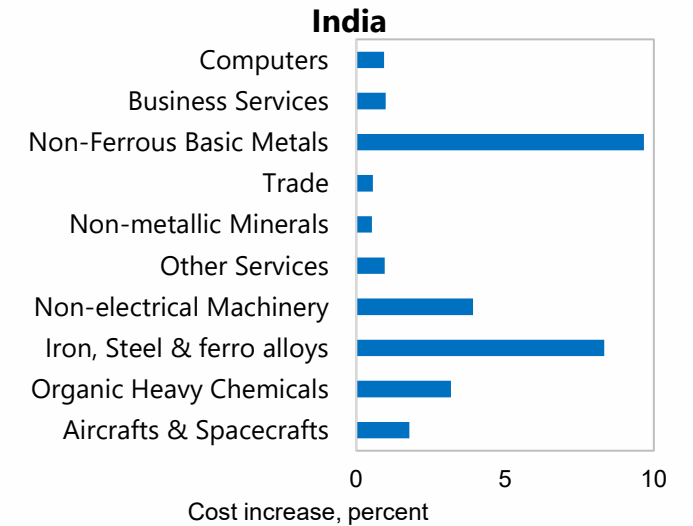
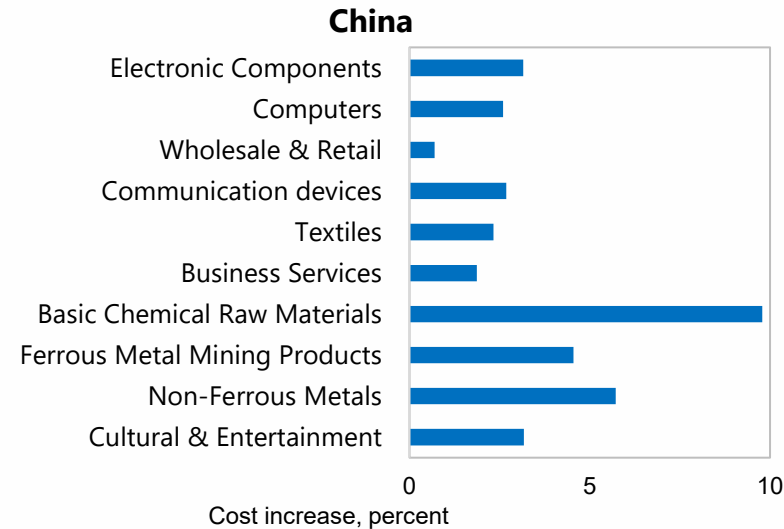
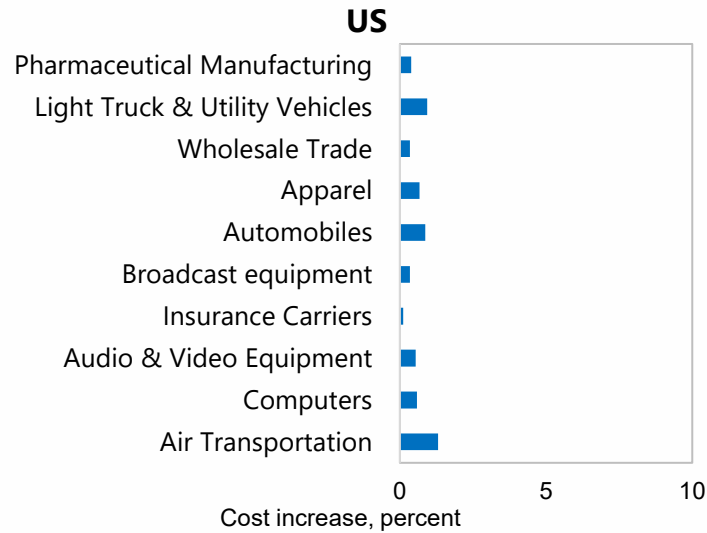
2. Domestic country uses carbon price, trading partner uses regulations for same abatement:

- BCA generally still warranted on economic grounds
- Leakage occurs but may have no net impact



Estimated cost increases from carbon pricing

Cost Increases from \$50 Carbon Price by Highest Trade Share, 2030



Estimated cost increases from carbon pricing

Top 10 Cost Increases from \$50 Carbon Price, 2030

