Border carbon adjustment and trade retaliation: What would be the cost for European Union?

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BCA in a fragmented climate regime

- A border carbon adjustment (BCA)
  - Levelling the playing field by imposing a similar constraint to domestic and foreign producers on their GHG emissions
  - Seen as an appealing policy option for the countries intending to implement more stringent unilateral policies
  - In particular for the energy-intensive and trade-exposed (EITE) sectors and carbon leakage limitation
- Option envisaged recently to complete the EU Emissions Trading Scheme (ETS)
  - *Article 10b - Measures to support certain energy-intensive industries in the event of carbon leakage: "*By 30 June 2010, the Commission shall […] submit to the European Parliament and to the Council […] any appropriate proposals, which may include […] (b) *inclusion in the Community scheme of importers of products which are produced by the sectors or subsectors [exposed to a significant risk of carbon leakage*" (EU, 2009)

Incentive to join or to retaliate?

- Existing literature on the economic impacts of a BCA (Babiker and Rutherford (2005); Böhringer et al. (2012))
  - Reduction of carbon leakage
  - Reduction of the welfare losses for the acting countries..
  - …by shifting a part of the carbon policy burden to the non-acting countries, including developing countries.
- These welfare losses might create an incentive for non-acting (or less acting) countries to price carbon, …
- …**but also to implement trade retaliation**.

The BCA, a trade measure

- A BCA may be contested by a member of the World Trade Organization (WTO) under its dispute settlement mechanism.
- Recent legal literature concluded that, under some conditions, a BCA may be WTO-compatible (UNEP-WTO, 2009).
- But the risk of WTO dispute remains high (Werksman et al., 2009; Holmes et al., 2010).
  - In 2010, the Indian Environment Minister Jairam Rames stated that *"India [would] bring a WTO challenge against any "carbon taxes" that rich countries impose on Indian imports"*
- If the BCA is considered illegal by the dispute settlement body (DSB) the complainants can be authorised to retaliate.

Objectives

- Approach based on recent political propositions and decisions
- Risk of trade retaliation for a region that implements a border measure for climate reasons = > assessment of this risk.
- Which extent of export losses? Might they justify trade retaliation?
- Which type of trade sanctions can be expected?
- Which might be the cost of trade retaliation?
  - For retaliators and the country targeted by the trade sanctions
  - Different types of cost:
    - Competitiveness indicators: exports and production levels
    - Macroeconomic indicators: GDP and welfare
- We focus on EU.

1. The model

Method

- Simulations with MIRAGE model (Fontagné et al. (2013); Decreux and Valin (2007))
  - Standard multi-sectoral and multi-regional CGE model
  - Calibration based on
    - GTAP 8 database for year 2007
    - Macroeconomic projections with the model MaGE between 2007 and 2020

Sector and geographic aggregations

Table 1: Overview of regions and sectors

Regions	Sectors
European Union (EU27)	**EU ETS sectors**
European Free Trade Association (EFTA)	Paper products, publishing (ppp)
United States of America (USA)	Petroleum, coal products (p_c)
Canada	Chemical, rubber, plastic products (crp)
Japan	Mineral products nce (nmm)
Australia and New Zealand (ANZ)	Ferrous metals (i_s)
Russian Federation	Metals nce (nfm)
Rest of Europe	Electricity (ely)
Brazil	**Energy sectors**
China and Hong-Kong (ChinaHK)	Coal (coa)
South Africa	Oil (oil)
India	Gas (gas), gas distribution (gdt)
Oil producing countries[a]	**Other sectors**
Other Latin America	Crops[c]
Other South-east Asia	Livestock[d]
Least Developed Countries (LDC)[b]	Minerals nce (omn)
Rest of the World	Food[e]
	Rest of Industry
	Transport[f]
	Services[g]

2. Scenarios

Scenarios

- **“Business-As-Usual” Scenario (BAU)** without climate policy
- **ETS Scenario** with current emission reduction pledges
- **BCA Scenario** EU implements a border carbon adjustment
- **TR Scenario** EU partners retaliate against the BCA

Scenarios

- **Scenario "Business-As-Usual" (BAU)** without climate policy
- **Scenario ETS**
  - Emission reduction commitments taken in Copenhagen in 2009
  - In the EU, the objective is a reduction of 20% between 1990 and 2020 (14% between 2005 and 2020)
  - In the EU ETS: -21% between 2005 and 2020 and the allowances are assumed auctioned
  - Aviation sector is included in the EU ETS
- **Variant 1:** "Stop-the-clock" amendment to analyze the implications of softening the carbon constraint in the EU ETS.

Scenario BCA

- Our approach is motivated by the propositions made recently in the political sphere to implement a border trade measure, generally in connection to the EU ETS
- BCA applied in the EU
- BCA targets direct emissions of imports of EITE goods from 2015
  - As shown in Böhringer et al. (2012) and Matto et al. (2013), this design tends to limit the impacts of the measure on trade partners.
- The carbon content of imported products is sector- and country-specific.
  - This tends to amplify the impacts of the measure on trade partners.
- **Variant 2:** Design covering direct and indirect emissions to analyze the implications of a more trade-impacting BCA.

Scenario TR

1. EU's trade partners ask to the Dispute Settlement Body to constitute a panel.
2. The panel concludes that the EU BCA does not respect the WTO rules.
3. **The EU maintains its BCA.**
4. The complainants are authorized to implement trade retaliation against the EU.
5. Trade sanctions are applied.

Group of complainants

- Countries having export losses in the EITE sectors (**comparison of ETS and BCA scenarios**)
- With enough financial and human resources to complain
- Individually represented in the model

Brazil, Canada, China, India, Japan, Russia, South Africa and the USA

Which design for trade retaliation?

- Not the optimal reaction from the complainants.
- **Based on previous cases for which some tariff increases have been authorized by the DSB**
  - EU-USA-Canada ' Beef Hormones' case, USA steel tariff, EU-USA Bananas case, EU-USA Foreign sales corporation case.
- Three elements must be determined to define the retaliatory measures:
  1. the amount of retaliation that would be authorized by the DSB,
  2. the list of products to which the measures would be applied (retaliation list)
  3. the magnitude of tariff retaliation

Amount of retaliation

- Reciprocity approach: *"complainant's permissible retaliation is to reduce the volume of the exports by an amount equal to the respondent's reduction of importations […]"* (Bown and Ruta, 2008)
- Applied to some trade flows whose amount equalizes the export losses in the EITE sectors due to the BCA

The retaliation list

- In previous cases the retaliation **targeted EU sensitive products**.
- How to chose these sensitive products?
- Use of the MAcMap-HS6 database
  - *Ad valorem* equivalent of 5,113 products (HS6) for almost 170 importing countries against 220 exporting countries.
- Merge of the tariff data with trade data between the EU and the complainants
- Exclusion of the EU products that benefit from free access to each complainant's markets and those that face tariff duty equal to (or higher than) 100%.

The retaliation list

- Trade flows are sorted by descending order of the value of complainants' imports coming from the EU
- The selected products match the total losses of complainant's export to the EU
- Very few products (between 1 and 6) selected except for India
- **Often not products targeted by the BCA**
- **Variant 3**: The HS-6 lines with an initial tariff below 20% are excluded from retaliation. Test of the robustness of the results to a different strategy of EU's trade partners.

The tariff retaliation

- WTO rules leave most of the decisions to the discretion of the retaliating country
- The goal of WTO is generally not to compensate exporters' losses, but to induce to remove the WTO-inconsistent policy.
- Application of a duty of 100%
  - Prohibitive retaliatory tariff at the HS6 level.
  - Not prohibitive but higher average tariff at the aggregated level of the GTAP 8 database

Applied tariffs to the EU, in sectors subject to retaliation (%)

Importer	Sector	Tariff applied	
		Initial	Final
Brazil	Food	14.7	16.3
Canada	Food	33.5	34.4
China HK	Food	7.5	9.0
India	Crops	27.3	95.3
India	Industry	55.4	103.0
India	Livestock	18.5	60.7
India	Chemical, rubber, plastic products	8.6	10.5
Japan	Food	26.1	27.8
Russia	Food	19.8	21.9
South Africa	Food	10.5	16
USA	Food	7.4	11.9

Source: authors' calculations based on MAcMap-HS6.

3. Results

Some export losses amounts which might authorize trade retaliation

- Extent of export losses in the EITE sectors towards EU differs greatly among retaliators
  - From 17 million USD in Brazil to 1,391 million USD in the US.
- Amount of damages comparable with (or higher than) damages already identified by the WTO dispute settlement as a justification for retaliation.
  - EC-USA-Canada beef hormones case: losses by the USA evaluated at 116.8 million USD and 11.3 million USD for Canada
  - EU-USA Bananas case: export losses amounting to 191.4 million USD

Export losses in the EITE sectors (FOB value, 2015)

Exporter	Variation in exports	
	million USD (1)	pct. change (2)
Brazil	-17	-0.3
Canada	-100	-0.7
China & HK	-710	-1.4
India	-425	-2.1
Japan	-102	-0.8
Russia	-363	-0.6
South Africa	-54	-0.6
USA	-1,391	-1.3

Impacts on international trade of EITE sectors

Table 4: Variation in exports in the EITE sectors (pct. deviation from baseline, volume, 2015)

Exporter	Scenario	
	ETS	BCA
European Union	-0.22	-0.16
Brazil	-7.71	-7.79
Canada	-2.72	-2.77
China & HK	-6.65	-6.91
India	2.27	1.92
Japan	-3.70	-3.75
Russia	2.88	2.62
South Africa	0.14	0.00
USA	-0.88	-1.15

Impacts in EU…

Table 6: Differences in exports and production (percent deviation from baseline, volume, 2020)

Exporter	Sector	Production			Exports		
		ETS	BCA	TR	ETS	BCA	TR
European Union	EITE	-1.89	-1.57	-1.59	-1.67	-1.55	-1.61
	Agri-food	-0.85	-0.88	-1.01	-2.21	-2.31	-2.84
	Other Industry	-1.28	-1.54	-1.50	-1.78	-2.16	-2.10

Table 8: Differences in macroeconomic indicators (percent deviation from baseline, 2020)

Country	Real income			GDP		
	ETS	BCA	TR	ETS	BCA	TR
European Union	-0.34	-0.31	-0.32	-0.17	-0.17	-0.17

…. and for the retaliators

Table 8: Differences in macroeconomic indicators (percent deviation from baseline, 2020)

Country	Real income			GDP		
	ETS	BCA	TR	ETS	BCA	TR
European Union	-0.34	-0.31	-0.32	-0.17	-0.17	-0.17
Brazil	-1.18	-1.18	-1.18	-0.49	-0.49	-0.49
Canada	-1.01	-1.01	-1.01	-0.24	-0.24	-0.24
China & HK	-2.00	-2.00	-2.00	-2.30	-2.30	-2.30
India	0.74	0.71	0.71	0.48	0.45	0.45
Japan	-1.04	-1.04	-1.04	-0.97	-0.97	-0.97
Russia	-2.61	-2.67	-2.67	-0.72	-0.75	-0.76
South Africa	-0.62	-0.63	-0.62	-0.25	-0.26	-0.26
USA	-0.29	-0.29	-0.29	-0.07	-0.07	-0.07

Conclusion

- The amount of export losses due to a BCA imposed by the EU on its energy-intensive imports may justify retaliation.
- Both the BCA and trade retaliation do not have sizeable impacts on competitiveness and macroeconomic indicators
  - Weak cost for the EU but also for the retaliators
- The cost of trade sanctions might not prevent the implementation of border measures for climate reasons.

Thank you for your attention

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