The potential of tariff policy for climate change mitigation

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Overview

- We address a potential role that tariffs and tariff policy can play in encouraging countries to take part in a multilateral effort to mitigate climate change
- We begin by assessing whether increasing tariffs on products from energy intensive or polluting industries amounts to a violation of WTO rules and whether protectionism in this case can be differentiated from genuine environmental concerns
- We then explore the possibility of a unilateral tariff increase on the imports of the most carbon-intensive products (as identified in this literature) from countries non-committed to climate-mitigation polices (Annex II, Kyoto Protocol)
- Results from partial equilibrium analysis suggest that plurilateral action would be more effective than countries pursuing tariff policy in isolation, leading to an average 1.4% net reduction in carbon-intensive imports from a 5% increase in tariffs

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Legal analysis

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Key disciplines of the WTO agreements

- In accordance with GATT Article III, a member shall not discriminate between its own and “like” foreign products (giving them “national treatment”)
- According to the most-favoured nation clause, a WTO member shall not discriminate between “like” products from different trading partners (giving them equally “most favoured-nation” status)
- If a trade-related climate change measure is found to be inconsistent with one of the core provisions of the GATT, justification could still be sought under Article XX
- Article XX lays out a number of specific instances in which WTO members may be exempted from GATT rules. The exception potentially applies to all provisions of the Agreement, including those relating to tariffs in Article II and Article XXVIII of the GATT

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Limits of border tax adjustments

- The literature uses different terms, such as border tax adjustment, border carbon adjustment, and border tax measures. However all these measures boil down to the same - unilateral measures that a country imposes when a good is imported from a country where climate policy is not 'comparably effective'
- GATT limits border tax adjustment to the equivalent of an internal tax. It cannot exceed levels of domestic taxation. In practice, there is no certainty that such taxes would be able to absorb the levels of pollution caused by production in the country of origin
- Hence the measure may be insufficient to offset the price of carbon emissions. Unlike tax adjustment, however, tariffs do not face this limitation and can be deconsolidated as deemed necessary to capture effective levels of pollution by non-state of the art technology

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Tariffs

- Since GATT 1947, the main drive by WTO members has been to achieve the maximum unification and overall general reduction of rates in the national tariff systems. This has been achieved through multiple rounds of negotiations; on average, industrialized tariffs were reduced from 40% in 1947 to 4% in 1995
- Article II lays down the crucial principle of Bound and Unbound tariffs. The bound products inscribed in Part I of the schedule must not be taxed in excess of the stipulated levels, while unbound products do not carry such a ceiling
- Article XXVIIIbis specifically encourages members to increasingly lower and bind maximum tariff ceilings. However, binding or consolidating a tariff is not irreversible

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Tariff Deconsolidation

- Unbound tariffs, by definition, are open to increases. Members can also deconsolidate bound tariffs by offering compensation to Members on other tariff lines, which could be offered for clean products in terms of climate change mitigation policies
- To the extent that applied tariffs are lower than bound tariffs, they can be increased even without deconsolidation

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PPM based Tariff Differentiation

- The main and unresolved problem is whether tariff deconsolidation can be undertaken on the basis of process and production methods
- However, it is established in case law that distinctions based upon PPMs, in the final analysis, can be operated under the exceptions of Article XX(g) protecting non-renewable resources, including climate

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Economic analysis

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List of countries and products

- Importers: Australia, Canada, the EC, Iceland, Japan, New Zealand, Norway, Switzerland and USA
- Exporters: Argentina, Brazil, Chile, China, India, Indonesia, Israel, Mexico, the Philippines, Russia, South Africa, South Korea, Thailand, Turkey and USA

  [NB: These countries accounted for 70-80% of global CO_2 emissions over 1996-2008]
- Products: Paper, rubber, glass, plastics, iron & steel, cement, and basic chemicals

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Trade in these products is significant for the importers…

Share (%, year 2005) of C-intensive products in total imports from exporters

Exporter/Importer	Australia	Canada	EU	Iceland	Japan	NZ	Norway	Switzerland	USA
World	11.3	12.9	8.8	10.1	7.8	13.1	13.7	14.1	10
Argentina	9.5	**35.9**	7.9	0.1	3.5	12	**20.6**	3.4	11.7
Brazil	**19**	**18.3**	14.6	1.6	8.8	4.5	1.2	12.4	**20**
Chile	**42.6**	1.8	13.4	3.5	4.3	3.7	**17.2**	**21.9**	6.9
China	9.9	8	6.1	5.5	7.5	9.4	5	14.1	6.7
India	**14.9**	14.4	13.5	**31.5**	8.4	13	6.4	**23.6**	10.1
Indonesia	9.1	10.3	8	**15.8**	6.4	**22**	**20.9**	10.1	6.1
Israel	**25**	12.2	**16.9**	11.9	9.4	**18.4**	10.2	8.1	4.6
South Korea	**17.1**	13.7	6.8	5.8	**20.3**	**26.4**	7.1	12.1	11
Mexico	3.5	4.3	10.3	6.6	1.9	9.3	9.2	**42.3**	5.5
Philippines	8.7	1.3	1.9	0.5	3.9	7.8	2.7	2	2.2
Russia	**44.6**	13.1	8	**18.6**	4.5	**69.3**	9.5	10.5	14.6
South Africa	**15.6**	**22.1**	**15.2**	1.8	13.1	**25.1**	6.8	1.6	**18.8**
Thailand	9.2	9.3	7.4	3.6	8.6	14.3	5.1	3.1	8.4
Turkey	12.7	**27.6**	9.8	4.5	5.5	7.4	4.3	4	**15.9**
USA	12.2	**16**	11.6	6.1	9.7	10.7	9.2	8.5	

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Source: UN Comtrade through World Bank WITS; own calculations

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…as well as for the exporting countries

Share (%, year 2005) of C-intensive products in total exports to importers

Exporter/Importer	Australia	Canada	EU	Iceland	Japan	NZ	Norway	Switzerland	USA
World	11.3	14.1	14.4	9.3	7.9	12.9	13.4	12.6	9.9
Argentina	11.2	**36.1**	7.7		3.1	12.5	**37.8**	1.4	11.7
Brazil	**15.2**	**17.2**	13.1	1.8	11.0	6.3	1.3	**24.7**	**20.8**
Chile	**40.5**	1.7	15.1	13.0	2.6	4.8	0.4	0.2	6.9
China	12.3	10.4	7.1	6.8	8.1	12.4	6.6	6.7	7.7
India	**16.1**	**17.8**	12.7		9.9	13.4	5.8	**21.8**	10.3
Israel	**28.8**	**15.8**	18.4	13.3	12.7	**29.7**	**15.9**	2.3	5.3
South Korea	**21.2**	**16.8**	5.9	3.9	**20.4**	**25.2**	6.1	6.1	11.5
Mexico	4.5	5.0	11.9	8.1	2.3	**18.7**	**78.6**	**18.9**	5.5
Philippines	7.6	1.4	2.6		6.2	3.6	**16.3**	4.2	2.1
Russia	**63.3**	**32.1**	8.9	**47.0**	4.0	**77.8**	**15.5**	3.2	**36.6**
South Africa	12.7	**23.7**	17.4	1.2	13.2	**24.9**	7.2	3.7	**25.8**
Thailand	11.7	9.0	7.5	2.3	8.2	**15.3**	5.4	5.9	9.8
Turkey	11.4	**34.7**	9.3	4.1	4.4	11.4	4.6	4.5	**17.7**
USA	9.9	16.0	12.0	4.8	11.4	9.6	7.7	5.2	

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Source: UN Comtrade through World Bank WITS; own calculations

And the tariffs are generally low

Average simple applied tariffs (%, year 2005)
on C-intensive exports in destination markets

Exporter/Importer	Australia	Canada	EU	Iceland	Japan	NZ	USA
World	3.1	1.5	2.9	1.0	**0.9**	2.7	1.4
Argentina	4.0	1.1	2.8	6.3	**0.1**	4.5	**0.6**
Brazil	4.0	**0.9**	2.8	3.1	**0.1**	2.6	**0.5**
Chile	3.4	**0.0**	3.2	2.1	**0.5**	2.4	**0.2**
China	3.1	**0.9**	2.8	3.6	**0.0**	2.7	2.0
India	3.3	1.0	2.8	4.0	**0.0**	3.2	**0.8**
Indonesia	3.3	1.3	2.7	3.6	**0.0**	2.8	**0.6**
Israel	3.8	**0.0**	2.8	4.1	1.1	2.8	**0.0**
South Korea	3.8	1.0	2.8	2.3	1.4	2.9	2.0
Mexico	4.3	**0.0**	2.9	3.3	**0.1**	3.3	**0.1**
Philippines	3.3	1.4	2.9	7.6	**0.0**	2.9	**0.6**
Russia	4.0	1.0	2.8	4.7	1.4	2.7	**0.8**
South Africa	4.2	**0.9**	2.9	4.7	**0.1**	3.1	**0.0**
Thailand	**0.5**	1.0	2.8	3.7	**0.0**	2.8	**0.5**
Turkey	3.9	**0.9**	2.9	3.3	**0.0**	2.8	**0.6**
USA	**0.0**	**0.0**	2.8	2.5	1.3	2.6	

Source: WTO's IDB through World Bank WITS; own calculations

Partial equilibrium analysis

- We employ partial equilibrium analysis using the SMART model to simulate the impact of a 5% increase in tariffs

Trade Creation = $\varepsilon_{k,i} * M_{k,i} * \{dt_{k,i}/(1+t_{k,i})\}$ and
Trade Diversion = $\{(M_{k,i} * M_{k,\neq i})/(M_{k,i}+M_{k,\neq i})\} * (dt_{k,i}/(1+t_{k,i})) * \sigma_{k,i\neq i}$

Where

- $\varepsilon_{k,i}$ = import demand elasticity of product k imported from country i
- $M_{k,i}$ = value of imports of product k imported from country i
- $dt_{k,i}$ = change in tariff on product k imported from country i
- $t_{k,i}$ = simple applied tariff on product k imported from country i
- $M_{k,\neq i}$ = value of imports of product k imported from all other countries except i (≠i)
- $\sigma_{k,i\neq i}$ = elasticity of substitution across imports of product k from country i and all other countries (≠i)

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Trade creation and diversion effects (year 2005); unilateral 5% rise in the avg. simple applied tariff

Exporter/Importer	Effects	Australia	Canada	EU	Iceland	Israel	Japan	New Zealand	Norway	Switzerland	USA	Average
Argentina	TC/M %	-5.0	-5.1	-5.0	-5.0	-4.9	-6.2	-5.0	-5.2	-5.2	-5.5	-5.2
	(TC+TD)/M %	2.1	2.3	2.2	2.1	2.2	1.2	2.2	2.3	2.3	1.8	2.1
Brazil	TC/M %	-5.0	-5.1	-5.0	-5.0	-5.0	-6.2	-5.0	-5.2	-5.2	-5.5	-5.2
	(TC+TD)/M %	2.1	2.2	2.0	2.3	2.2	1.1	2.2	2.3	2.3	1.6	2.0
Chile	TC/M %	-5.1	-5.1	-5.0	-5.1	-4.9	-6.4	-5.1	-5.2	-5.2	-5.5	-5.2
	(TC+TD)/M %	2.1	2.3	2.2	2.3	2.2	0.9	2.3	2.3	2.3	1.8	2.1
China	TC/M %	-5.1	-5.1	-5.0	-5.0	-5.0	-6.2	-5.0	-5.2	-5.2	-5.5	-5.2
	(TC+TD)/M %	1.1	1.8	1.2	2.0	1.7	**-0.4**	1.6	2.1	2.2	0.8	1.4
India	TC/M %	-5.0	-5.1	-5.0	-5.0	-5.0	-6.2	-5.0	-5.2	-5.2	-5.5	-5.2
	(TC+TD)/M %	2.1	2.2	2.1	2.2	2.1	1.2	2.2	2.3	2.3	1.7	2.0
Indonesia	TC/M %	-5.0	-5.1	-5.0	-5.0	-5.0	-6.2	-5.0	-5.2	-5.2	-5.5	-5.2
	(TC+TD)/M %	2.0	2.2	2.2	2.3	2.2	0.8	2.0	2.3	2.3	1.7	2.0
Israel	TC/M %	-5.0	-5.1	-5.0	-5.0		-6.2	-5.1	-5.2	-5.2	-5.5	-5.2
	(TC+TD)/M %	2.1	2.2	2.2	2.2		1.2	2.3	2.3	2.3	1.8	2.1
South Korea	TC/M %	-5.0	-5.1	-5.0	-5.0	-4.9	-6.2	-5.0	-5.2	-5.2	-5.5	-5.2
	(TC+TD)/M %	1.8	2.2	2.0	2.2	2.0	0.4	1.9	2.2	2.3	1.6	1.9
Mexico	TC/M %	-5.0	-5.1	-5.0	-5.0	-4.9	-6.2	-5.0	-5.2	-5.2	-5.5	-5.2
	(TC+TD)/M %	2.1	2.1	2.2	2.3	2.2	1.2	2.2	2.3	2.3	1.2	2.0
Philippines	TC/M %	-5.0	-5.1	-5.0	-4.9	-4.9	-6.2	-5.1	-5.2	-5.2	-5.5	-5.2
	(TC+TD)/M %	2.1	2.3	2.2	2.1	2.1	1.1	2.3	2.3	2.3	1.8	2.0
Russia	TC/M %	-5.1	-5.1	-5.0	-5.0	-5.0	-6.2	-5.0	-5.2	-5.2	-5.5	-5.2
	(TC+TD)/M %	2.2	2.3	1.9	2.1	2.0	1.2	2.2	2.2	2.3	1.7	2.0
South Africa	TC/M %	-5.0	-5.1	-5.0	-4.9	-5.0	-6.2	-5.0	-5.2	-5.2	-5.5	-5.2
	(TC+TD)/M %	2.1	2.2	2.1	2.2	2.2	1.1	2.2	2.3	2.3	1.8	2.0
Thailand	TC/M %	-5.0	-5.1	-5.0	-5.0	-4.9	-6.2	-5.0	-5.2	-5.2	-5.5	-5.2
	(TC+TD)/M %	1.9	2.2	2.1	2.3	2.1	0.7	2.0	2.3	2.3	1.7	2.0
Turkey	TC/M %	-5.0	-5.1	-5.0	-5.0	-5.0	-6.2	-5.0	-5.2	-5.2	-5.5	-5.2
	(TC+TD)/M %	2.1	2.2	1.9	2.2	1.5	1.2	2.2	2.3	2.3	1.7	2.0
USA	TC/M %	-5.1	-5.1	-5.0	-5.0	-5.0	-6.2	-5.0	-5.2	-5.2		-5.2
	(TC+TD)/M %	1.2	**-3.0**	1.2	1.8	1.4	0.0	1.7	2.1	2.2		0.9
Average	TC/M %	-5.0	-5.1	-5.0	-5.0	-5.0	-6.2	-5.0	-5.2	-5.2	-5.5	-5.2
	(TC+TD)/M %	2.0	1.9	2.0	2.2	2.0	0.9	2.1	2.3	2.3	1.6	1.9

Source: Authors calculations using the SMART model

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Trade creation and diversion effects (year 2005); plurilateral 5% rise in the avg. simple applied tariff

Product	TC ($ mn)	TD ($ mn)	(TC/M)%	TC+TD ($ mn)	(TC+TD)/M%
Paper	-1211.0	843.2	-6.6	-367.8	-2.0
Chemicals	-2976.2	2828.8	-5.0	-147.4	-0.2
Rubber	-770.4	549.0	-5.2	-221.5	-1.5
Plastics	-1371.6	961.6	-4.6	-410.0	-1.4
Glass	-392.3	255.5	-4.9	-136.9	-1.7
Iron & steel	-2115.8	1517.0	-5.0	-598.8	-1.4
Average	**-1472.9**	**1159.2**	**-5.2**	**-313.7**	**-1.4**

Source: Authors calculations using the SMART model

Conclusion

- Members of the WTO are in a position to considerably influence trade of highly carbon intensive products by marginally adjusting and increasing tariffs levels
- These increases are subject to compensation on other tariff lines, which could be offered for clean products in terms of climate change mitigation policies
- Deconsolidation can be based upon PPM related criteria, and distinctions of tariff lines based upon production methods of the same products can, in principle be justified by Article XX(g) of the GATT
- However, such measures would likely elicit comparable retaliation by affected countries, especially emerging economies, and therefore can easily trigger trade wars, thus jeopardizing the multilateral system
- Thus, deconsolidation is at its best if not used, but taken into account as a risk and thus as an incentive to join a future international system on climate change mitigation

Thank you!

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