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International Trade and Climate Change: Border Adjustment Measures and Developing Countries

Summary

In the wake of the failure of the Copenhagen climate talks, carbon border adjustment measures are gaining momentum both in the European Union (EU) and in the United States (US). Observers regard it as politically inevitable that trade measures will be a necessary requirement for US climate legislation to pass the House of Representatives and the Senate. Border adjustments are trade measures that seek to level the playing field between domestic producers, who are faced with costly climate change policies, and foreign producers, who are faced with none or very few. There are three design options: the imposition of a tax equalising the costs that climate policies generate for domestic producers, compulsory acquisition of emission allowances when the relevant goods are imported or tax rebates when these goods are exported. The most important target economies of border adjustments are big emitters like China, India and South Korea. But the risk is that energy- and emission-intensive sectors in low-income countries (LICs) may end up being caught in the crossfire.

An analysis of the potential economic impact of border adjustments on developing countries with a special focus on LICs identifies Mozambique and Tajikistan as the LICs most vulnerable to EU border adjustments and Tajikistan and Zimbabwe as those most exposed to US border adjustments. The current debate neglects the impact of border adjustments on the situation of poor countries in the multilateral trading system, even though LICs are especially exposed to changes in trade policy, in particular when their exports are highly concentrated in only a small number of commodities. Thus, from a development perspective, border adjustments should be regarded with caution. Moreover, border adjustments are contested in terms of their uncertain environmental effectiveness, their practical feasibility, their questionable legality and their negative implications for the multilateral climate and trade regimes.

The following policy actions are therefore recommended:

- Efforts to agree on a post-2012 agreement should be further strengthened: a legally binding global climate deal with full coverage and participation would reduce the political pressure in favour of border adjustments.
- In light of the likelihood that border adjustments will be included in domestic climate legislation in developed countries, an independent body should articulate a set of multilateral guidelines to limit the use of such measures. The guidelines should, for example, call for transparency, predictability and consistency in their deployment in order to ensure that domestic implementation is consistent with the objectives of the United Nations Framework Convention on Climate Change (UNFCCC) and the World Trade Organization (WTO).
- If border adjustments are in fact enacted, products from Least Developed Countries (LDCs) and countries responsible for a *de minimis* level of global greenhouse gas emissions should be exempted from border adjustments.
- Accompanying assistance measures should be put in place for vulnerable developing countries, above all for LICs that are not classified as LDCs.
- The proceeds from border adjustment measures should be used to assist affected lower-income countries to cut back on the carbon intensity of their economies.

Border adjustments in current policy debates

Carbon border adjustments are trade measures that aim at levelling the international playing field in terms of costly greenhouse gas reduction efforts. While developed countries have favoured free emissions allowances as a means to provide temporary assistance to energy-intensive and trade-exposed industries currently subject to costly climate policies, border adjustments are gaining increasing salience both in the EU and in the US. In 2008, the European Commission proposed to revise the EU Emissions Trading Scheme (ETS) for the post-2012 period, and this could include border adjustments. Whereas the current EU trade commissioner Karel De Guch has criticised the idea of imposing border adjustments, French President Nicolas Sarkozy recently re-insisted that he would fight for such measures. In the US, current draft climate legislation includes trade measures. The most recent Kerry-Lieberman bill, unveiled in May 2010, also includes language that allows for border adjustments. From 2025 on, their proposed American Power Act (APA) would, under certain conditions, prompt a programme of unilateral border adjustments: importers would have to purchase allowances before products in certain 'eligible sectors' could be sold in the US. The US draft legislation specifies that potential trade measures would apply in the context of domestic industries that exhibit an energy or greenhouse gas intensity of at least 5 % and a trade intensity of at least 15 %. The exposed industries that meet the above criteria in the US mostly overlap with those that would be relevant in the EU ETS. According to the US Government Accountability Office, most of the eligible US industries are in metals (e.g. aluminium, iron and steel), non-metallic minerals (e.g. cement, glass, clay), paper and chemicals (e.g. nitrogenous fertiliser). A number of measurement problems arise because manufactured goods are typically assembled from a variety of raw materials and semi-finished intermediate goods. Given disaggregated supply chains for many manufactured goods, it will often be impossible to calculate the overall amount of greenhouse gas emissions embodied in imports that are subject to border adjustments.

Main motivations behind border adjustments

Three main motivations for border adjustments have emerged in the course of recent policy discussions: to protect domestic industry from competitive disadvantages due to unequal international carbon prices (*competitiveness concern*); to prevent the relocation of energy- or emission-intensive companies from countries with a high carbon price to areas with a low or nonexistent price on carbon *(carbon leakage concern*); to induce other countries to pursue more ambitious climate policies and join a post-2012 international agreement on climate policy (*free-riding concern*). The specific economic and environmental effectiveness of border adjustments depends on their exact design. But a review of studies published to date suggests that while border adjustments may be effective in addressing the economic competitiveness concern, their environmentally relevant impact on reducing leakage is less clear and may only be modest. Moreover, threatening to impose border adjustments, rather than successfully addressing free-riding concerns by bringing countries like China to the international negotiation table, would tend to make international climate cooperation even more difficult than in the absence of such a threat.

Economic implications for low-income countries

The domestic and global welfare effects of border adjustments are also contested. Hardly any research has been conducted on the impact of border adjustments at the country level, let alone at the sectoral level. Above all, very few papers assess their impact on developing countries. A recent World Bank paper by Mattoo et al. (2009) represents one of the rare exceptions. But in limiting their analysis to the effects of border adjustments on large groups of developing countries and regions, the authors neglect some potentially much stronger negative effects at the level of individual countries. Moreover, by assessing trade in terms of large, heterogeneous sectors, they disregard some potentially much more serious effects at the sub-sectoral level, which are especially crucial in light of the fact that trade in lower-income developing countries tends to be heavily dependent on a very small set of commodities.[1]

To fill this gap, this policy brief explores the vulnerability of LICs and LMICs (lower-middle-income countries) to border adjustments by assessing EU and US imports between 2004 and 2008 at the country and sector level. The findings for the EU (listed in Table 1) demonstrate that in terms of trade dependence on energy-intensive exports to the EU, the most vulnerable LICs are Mozambique, Tajikistan and Zimbabwe.[2] In Mozambique, energy-intensive exports to the EU consist mostly of aluminium, but also of iron, cement and paper. 80 % of exports to the EU are energy-intensive, which adds up to almost 50 % of Mozambique's total exports. Mozal, an aluminium smelter, is the country's largest foreign investment project to date, and it would be difficult to overemphasize its economic significance for Mozambique.

1 The only study with a focus on developing countries that has attempted to go beyond macro-level analyses to date is Curran (2009). Yet her analysis includes certain sectors that are irrelevant for the current policy measures under consideration, e.g. uranium and natural rubber, while it excludes others that are of high relevance for possible border measures, e.g. nitrogenous fertilisers.

2 The analysis of trade flows relies on the Standard International Trade Codes and includes iron and steel, aluminium, cement, glass, paper, clay and certain chemicals. Tables 1 and 2 list only LICs and LMICs with more than 3.0 % and more than US$ 10 million of exports to the EU or the US in energy-intensive sectors.

Table 1: Energy-intensive exports from LICs and LMICs to the EU

Country	Economic classification	Average share of energy-intensive exports (2004-2008)	Average energy-intensive trade flows in mill. US$ (2004-2008)
Mozambique	LIC / LDC	84.5 %	1203
Tajikistan	LIC	71.4 %	184
Armenia	LMIC	39.7 %	1862
Ukraine	LMIC	32.5 %	782
Moldova	LMIC	22.9 %	180
Zimbabwe	LIC	22.8 %	115
Egypt	LMIC	16.6 %	1426
Jordan	LMIC	14.0 %	53
Georgia	LMIC	12.1 %	76
India	LMIC	8.2 %	2494
Albania	LMIC	6.7 %	47
Iran	LMIC	5.3 %	879
Cameroon	LMIC	5.2 %	157
Tunisia	LMIC	4.2 %	447
Ghana	LIC	4.2 %	403
China	LMIC	4.0 %	10387
Indonesia	LMIC	3.6 %	570
Uzbekistan	LIC	3.0 %	32
Morocco	LMIC	3.0 %	312

Source: UN Comtrade (calculation by the author)

In the US, the most vulnerable LICs are Tajikistan and Zimbabwe (see Table 2). These countries are thus exposed to both EU and US measures.

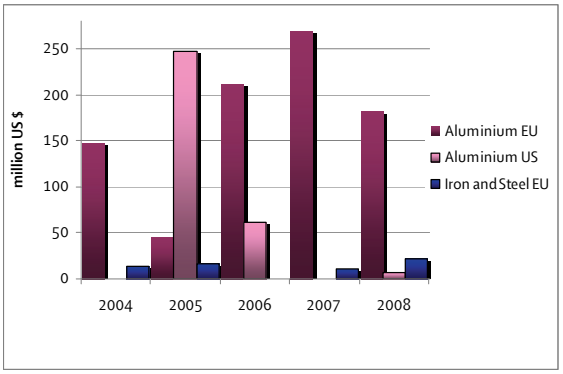
Table 2: Energy-intensive exports from LICs and LMICs to the US

Country	Economic classi fication	Average % energy-intensive exports (2004-2008)	Average energy-intensive trade flows in mill. US$ (2004-2008)
Tajikistan	LIC	74 %	51
Ukraine	LMIC	62.9 %	973
Zimbabwe	LIC	50.3 %	48
Georgia	LMIC	49.8 %	85
India	LMIC	7.0 %	1569
Indonesia	LMIC	3.2 %	458
China	LMIC	3.0 %	8488

Source: UN Comtrade (calculation by the author)

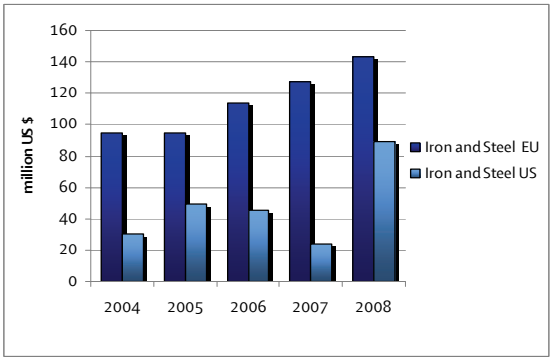
Firstly, Tajikistan has one of the lowest per capita GDPs among the fifteen former Soviet republics. While Tajikistan's economy has grown steadily since 1997, two-thirds of the population still live in poverty. From 2004 to 2008, around 74 % of Tajikistan's exports to the US consisted of energy-intensive goods, essentially aluminium, which accounts for 2 % of overall Tajik exports. More than 70 % of exports to the EU were energy-intensive, which amounts to more than 20 % of total exports. Most of these trade flows consist of aluminium, but Tajikistan also exports iron and fertilisers to the EU (see Fig. 1). Since its foreign revenue is highly dependent on exports of cotton and aluminium, Tajikistan's economy is extremely vulnerable to external shocks and price fluctuations caused by potential trade measures in either of these sectors. Secondly, Zimbabwe has declined from one of Africa's strongest economies to one of the world's poorest. The Zimbabwe Iron and Steel Corporation (Zisco), owned by the government of Zimbabwe, is the only fully-fledged steel producer in sub-Saharan Africa outside South Africa. In 2008, almost 80 % of trade flows to the US consisted of energy-intensive goods, essentially iron and steel, but also paper and glass. From 2004–2008, around 28 % of exports to the US were energy-intensive, which amounts to 2 % of Zimbabwe's overall exports. Around 22 % of exports to the EU were energy-intensive, amounting to more than 5 % of Zimbabwe's total exports (see Fig. 2).

Figure 1: Tajikistan: Energy-intensive exports to the EU and US



Source: UN Comtrade

Figure 2: Zimbabwe: Energy-intensive exports to the EU and US



Source: UN Comtrade

While most of Tajikistan's aluminium production is based on hydropower, surprisingly, the electricity for aluminum production in Mozambique is not generated on the basis of hydropower from the giant Cahora Bassa Dam but comes from a joint venture company that supplies – largely coal-based – South African energy to Mozambique. If border adjustments

do not distinguish between fossil fuel energy use and green energy use in the production process abroad, and are instead triggered on the basis of criteria that refer to domestic industry, like energy or emission intensity, the potential positive environmental effects of border adjustments will be undermined insofar as they will penalise energy-intensive industries abroad that rely on renewable energy.

How can negative implications for LICs be avoided?

Can industrialized countries introduce border adjustments and at the same time avoid negative economic consequences for LDCs and LICs? LDCs can be exempted from any new climate-related trade measures under the 'enabling clause' of the General Agreement on Tariffs and Trade (GATT). This clause gives developed countries the legal right to provide favourable treatment to developing countries in terms of trade policy. However, the 'enabling clause' will not safeguard all vulnerable countries. The reason is that it requires that all developing countries be treated the same way in terms of market access, except LDCs under the UN definition, such that countries that are LICs but not classified as LDCs will remain exposed. Thus, as long as there are no additional provisions that protect low emitters, certain non-LDC LICs, including Tajikistan and Zimbabwe, would be vulnerable to the negative economic impacts of border adjustments, even if LDCs like Mozambique were to be excluded from the scheme.

UNFCCC and WTO challenges

In addition, the threat of border adjustments poses challenges to the multilateral climate and trade regimes. The UNFCCC and WTO agreements both entail a set of principles that oppose the use of unilateral trade measures that constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade.

The use of trade measures for the specific objective of protecting domestic industry from competition is permitted neither by the WTO nor by the UNFCCC. But it may be feasible to calibrate border adjustments in such a way that they are adequately targeted to avoiding carbon leakage and fostering the transition to a low-carbon economy and thus contribute to the UNFCCC's goals without amounting to protectionism or violating WTO rules. To be in line with the WTO, border adjustments would have to qualify for an environment-related "exception" to WTO rules in line with GATT Art. XX. Yet, there is a high risk of retaliatory trade measures or WTO disputes arising over border adjustments. An independent body should seek to establish guidelines to restrict the use of border adjustments and help to prevent or guide the resolution of any potential disputes that might occur (see also Werksman / Bradbury / Weischer 2009).

Conclusions and policy recommendations

Border adjustment measures restrict market access for developing countries and thus undermine the potential of trade to foster development and poverty reduction. From a development perspective, border adjustments thus give rise to concerns. They are also contested in terms of their uncertain environmental effectiveness, their practical feasibility, their questionable legality and their repercussions on the multilateral climate and trade regimes. If border adjustments were to be initiated, products from LDCs and countries responsible for a small share of global emissions should be exempted. Moreover, complementary development measures should be put in place for hard-hit countries, above all for LICs that are not classified as LDCs. Proceeds from border adjustments should be used to assist developing country economies in reducing their carbon intensity. In addition, an independent international body should establish guidelines to restrict the use of border adjustments and help resolve potential WTO disputes.

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Clara Brandi
Research Fellow, DIE, World Economy and Development Financing

Tulpenfeld 6 · 53113 Bonn · Germany · Tel.: +49 (0)228 94927-0 · Fax: +49 (0)228 94927-130
E-mail: die@die-gdi.de · URL: www.die-gdi.de
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