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# How to design a border adjustment for the European Union Emissions Trading System?

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## ABSTRACT

Border adjustments are currently discussed to limit the possible adverse impact of climate policies on competitiveness and carbon leakage. We discuss the main choices that will have to be made if the European Union implements such a system alongside the EU ETS. Although more analysis is required on some issues, on others some design options seem clearly preferable to others. First, the import adjustment should be a requirement to surrender allowances rather than a tax. Second, the general rule to determine the amount of allowances per ton imported should be the product-specific benchmarks that the European Commission is currently elaborating for a different purpose (i.e. to determine the amount of free allowances). Third, this obligation should apply when the imported product is registered at the EU border, and not after the end of the year as is the case for domestic emitters. Fourth, the export adjustment should take the form of a rebate on the amount of allowances a domestic emitter has to surrender. Five, this rebate should equal the above-mentioned product-specific benchmarks, not the emissions of the particular exporting plant or firm. Finally, the adjustment does not have to apply to consumer products but mostly to basic products.

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## 0. Introduction

Whether or not an agreement is reached at the ongoing UNFCCC climate negotiations, it is very unlikely that a single global price for greenhouse-gas emissions will prevail. First, some countries may refuse to ratify a future treaty. Second, a treaty will certainly put different types of targets on countries with different development levels, following the principle of common but differentiated responsibilities. Third, parties to a treaty will most likely remain free to choose whether or not emissions from greenhouse-gas (GHG) intensive industries are regulated under an emission trading scheme or under other policy measures.

At least in theory, a persistent CO<sub>2</sub> price differential may change trade patterns, i.e. reduce sales of firms subjected to the highest CO<sub>2</sub> price in favour of those exposed to a smaller (or nil) CO<sub>2</sub> price, and induce what is called carbon leakage. Whilst evidence of such leakage is presently limited (Ellerman et al., 2009; Hourcade et al., 2008; Reinaud, 2008), industry groups and policy makers are concerned with the perceived adverse competitiveness implications of the European Union Emissions Trading Scheme (EU ETS). For this reason, Directive 2009/29/EC, which

revises the EU ETS, includes some provisions to limit carbon leakage. The main one is the continued free allowance allocation to the “sectors or subsectors which are exposed to a significant risk of carbon leakage” (Article 10a–12). However, the Directive also states that “By 30 June 2010, the Commission shall [...] submit to the European Parliament and to the Council [...] any appropriate proposals, which may include [...] 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]”. In other words, the Directive mentions, although cautiously, a border adjustment (BA) for GHG-intensive imports.<sup>2</sup>

In the USA, the Waxman–Markey bill adopted by the House of Representatives includes more concrete provisions. If no international agreement on climate change has been reached by January

<sup>2</sup> Recital 25 of the Directive further adds that “an effective carbon equalisation system could be introduced with a view to putting installations from the Community which are at significant risk of carbon leakage and those from third countries on a comparable footing. Such a system could apply requirements to importers that would be no less favourable than those applicable to installations within the Community, for example by requiring the surrender of allowances. Any action taken would need to be in conformity with the principles of the United Nations Framework Convention on Climate Change (UNFCCC), in particular the principle of common but differentiated responsibilities and respective capabilities, taking into account the particular situation of least-developed countries (LDCs). It would also need to be in conformity with the international obligations of the Community, including the obligations under the WTO agreement.”

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1, 2018, the president of the United States is required to set up an “international reserve allowance program.” From 2020 on, imports in a covered sector would be prohibited unless the importer has obtained an “appropriate” amount of emission allowances from the international reserve allowance program. This requirement can be defined as BA. It would not apply, however, to imports from countries that (1) have signed an international agreement with the United States that imposes economy-wide restrictions on greenhouse-gas emissions that are at least as stringent as those in the United States; (2) have signed a multilateral or bilateral emission-reduction agreement with the United States for the sector in question; (3) have an annual energy or greenhouse-gas intensity in that sector that is less than or equal to that of the equivalent US sector; (4) are classified as the least-developed or developing countries; (5) are responsible for less than 0.5% of total global greenhouse-gas emissions and less than 5% of US imports of covered goods in the sector (James, 2009; van Asselt and Brewer, 2010).

Similarly, the cap-and-trade bills introduced in the US Senate also include provisions for border adjustments, although with less details. This is the case of S. 1733, the Clean Energy Jobs and American Power Act introduced by Senators Kerry and Boxer on October 23, 2009 (Larsen et al., 2009) and of S. 2877, the Carbon Limits and Energy for America’s Renewal Act introduced by Senators Cantwell and Collins on December 11, 2009. For instance, the latter proposes an adjustment for both imports, through a “border carbon adjustment”, and exports, through a “targeted relief fund for exporters” (Larsen and Bradbury, 2010).

More generally, a BA is a trade measure designed to level the playing field between domestic producers facing costly climate policy and foreign producers with no or little constraint on their GHG emissions. A growing body of literature (e.g. Ismer and Neuhoff (2007), Godard (2007), Demailly and Quirion (2007, 2008), Mattoo et al. (2009)) as well as some stakeholders (ETUC, 2008) have come to the conclusion that a BA may effectively prevent climate policies from negatively impacting European industry competitiveness, although some analyses come to the opposite conclusion (Weber and Peters, 2009, and references therein).

BAs are also sometimes presented as a way for the EU to induce other countries to participate in an international climate protection agreement (Stiglitz, 2006). However, some experts come to an opposite conclusion since a BA may be seen as a trade sanction by developing countries and may thus threaten the goodwill in international climate negotiations (Droege et al., 2009).

As a trade measure, a BA may be contested by a member of the World Trade Organization (WTO) before the WTO dispute settlement mechanism. The basis or cause of action for a WTO dispute must be found in the “covered agreements”, including the General Agreement on Tariffs and Trade (GATT). The WTO Dispute Settlement Process is too complex to be detailed here but is described in WTO (2010). The priority is to settle disputes preferably through a mutually agreed solution, but if no such solution is found and if the losing party fails to comply with the WTO ruling, the prevailing member may receive the right to impose trade sanctions. Here again, recent analyses conclude that the design details of a BA will be key in determining whether it would be accepted by a WTO dispute panel (De Cendra De Larragán, 2006; Pauwelyn, 2007; Cosby, 2008; UNEP and WTO, 2009).

The aim of the present paper is not to conclude on the opportunity for the EU to implement a border adjustment. Rather, its aim is to discuss the main design options of a BA in complement to the EU ETS, if the EU decides to implement one. The criteria to discuss these options are their capacity to limit

carbon leakage and their likelihood to be accepted by a WTO dispute panel. When relevant, we also discuss whether these design options are more likely to inhibit or to favour the international climate negotiation, and their administrative cost.

Throughout this paper, we assume that allowances are fully auctioned. Firstly, a BA is much more difficult to justify under free allocation than under auctioning. Indeed, combining a BA with free allocation would mean either that foreign producers would receive no free allowances, hence that EU producers would be unduly advantaged, which the WTO would probably reject, or that the EU would allocate free allowances to foreign producers, which seems politically highly unlikely. Secondly, with a BA the European industry does not suffer from a competitive disadvantage (or much less so), there is thus little rationale for free allocation, which creates economic distortions (Matthes and Neuhoff, 2008). Godard (2007) and Genasci (2008) make proposals for a BA in case of a hybrid allocation with both freely allocated and auctioned allowances.<sup>3</sup>

The rest of the paper is structured as follows. The first part aims at clarifying the notions of competitiveness and carbon leakage used throughout the paper. In the second part, we list and discuss the different elements that require being defined, in order to implement a BA in complement to the EU ETS. More precisely we discuss: whether it should be based on taxes or allowances (Section 2.1) whether it should cover only imports or also exports (Section 2.2); the targeted products (Section 2.3); the adjustment base (Section 2.4); the countries covered (Section 2.5); the enforcement issues specific to the border adjustment (Section 3.1) and finally the administration cost (Section 3.2). The last part concludes and offers further research questions.

## 1. Competitiveness and carbon leakage—what are we talking about?

Competitiveness is a loosely defined word, which is often considered as meaningless at the macroeconomic level (Krugman, 1994). At the sectoral level, the Krugman critique does not apply but “competitiveness” is employed with very different meanings. On the basis of a literature survey, Alexeeva-Talebti et al. (2007) argue that competitiveness at the sectoral level resides in (i) “ability to sell” and (ii) “ability to earn”. The EU ETS increases the production cost of European producers in GHG-intensive sectors, some of which are exposed to international competition. If European producers pass through the cost to consumers, then they may lose some market shares vis-à-vis foreign producers, thus reducing their ability to sell. If they do not pass through costs on the other hand, then their market share may be unaffected at least in the short-run, but their profit will shrink due to their lower ability to earn and in the long run investments may shift outside of Europe (compared to a scenario without a climate policy). European industry will then lose some market shares in both European and foreign markets, with two main consequences: job losses and an increase in GHG emissions in non-European countries, i.e. carbon leakage.<sup>4</sup>

Yet carbon leakage is not limited to this “GHG-intensive industry channel”. Moreover, in most general equilibrium models the larger part of leakage occurs through the “energy prices channel”. That is, climate policies decrease the international prices of oil, gas and coal, hence increase their use in countries

<sup>3</sup> Basically, Godard’s proposal is equivalent to multiplying, for each sector covered, the level of the border adjustment by the share of auctioning.

<sup>4</sup> Leakage is defined as an increase in GHG emissions in non-European countries, which would follow a reduction in these emissions in the EU, cf. Droege et al. (2009) for an analysis of the issue.

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