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SYNTHESIS ARTICLE

Identifying carbon leakage sectors in the EU ETS and implications of results

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Abstract

A detailed description of the European Commission's carbon leakage quantitative assessment methodology is used to assess sectors at risk of carbon leakage. It sets out the steps taken to follow the EU Emissions Trading Scheme (EU ETS) Directive and the necessary work to generate useful data sets, as well as gaps in the assessment and its results. The resulting list of sectors at risk of carbon leakage is discussed from a broader perspective. The impact on emissions exempt from auctioning is also quantified. The results of the carbon leakage assessment show that, despite the carbon leakage provisions of the EU ETS Directive, the majority of emission allowances will be auctioned in Phase III of the EU ETS and, moreover, that the majority of emissions that will be freely allocated originate from only a small number of energy-intensive sectors.

Une description détaillée de la méthodologie d'analyse quantitative de la Commission européenne des fuites de carbone est utilisée pour évaluer les secteurs à risque de fuites de carbone. Une description est faite des mesures prises pour s'aligner au système communautaire d'échange d'émissions (SCEQE) sont décrites, ainsi que du travail requis pour produire des ensembles de données utiles, des faiblesses de l'évaluation et de ses résultats. La liste des secteurs à risque de fuite de carbone en découlant est examinée dans une perspective élargie. L'impact sur les émissions exemptées de la mise aux enchères est également quantifié. Les résultats de l'évaluation montrent que malgré les dispositions de la directive SCEQE sur les fuites de carbone, la majorité des quotas d'émission seront mis aux enchères en phase III du SCEQE et, en outre, que la majorité des quotas qui seront délivrés à titre gratuit seront à l'origine d'un petit nombre seulement des secteurs intensifs en énergie.

Keywords:

carbon leakage assessment | climate change | emissions trading scheme | European Union

Keywords:

Mots clés : évaluation des fuites de carbone | changement climatique | système d'échange de quotas d'émissions | Union européenne

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calculations when confidential data were involved. Also, together with P. Sneijder and B. Williams, he allowed us to better understand the nature of the data available and how it could best match the requirements of the Directive. The support of Jean Bemelmans and Marek Przeor in matching data from CITL with installations' corresponding NACE codes was very much appreciated. Furthermore, the authors thank three anonymous referees for their helpful comments. All remaining errors are the authors' own.

Notes

NACE stands for ‘Nomenclature générale des activités économiques dans les Communautés Européennes’. NACE consists of a hierarchical structure (as established in the NACE Regulation), the introductory guidelines and the explanatory notes. The structure of NACE is described as follows: (i) a first level consisting of headings identified by an alphabetical code (sections); (ii) a second level consisting of headings identified by a two-digit numerical code (divisions); (iii) a third level consisting of headings identified by a three-digit numerical code (groups); (iv) a fourth level consisting of headings identified by a four-digit numerical code (classes). Although the NACE classification has undergone a comprehensive revision (European Parliament and the Council of the EU, 2006) that is used for statistics referring to economic activity performed from January 2008 onwards, NACE Revision 1.1 (OJEC, 2002) is used as the reference period for the analysis (referred to in the Directive as ‘three most recent years’) as it covers the period 2005–2007 (see below). Future carbon leakage assessments might rely on NACE Revision 2 (European Parliament and the Council of the EU, 2006).

The ETS also creates incentives for individual companies to decide their production input mix (CO_2 versus abatement) and thus achieve in the most cost-efficient manner the reduction targets. This issue is not the main focus of this article.

Five sectors, however, have been deemed to be at risk of carbon leakage following the qualitative assessment. Recitals 17 to 21 of the Commission Decision 2010/2/EU provide a brief summary of the arguments supporting their inclusion. These sectors are: Finishing of textiles (NACE 4-digit 17.30; Revision 1.1); Manufacture of veneer sheets, plywood, laminboard, particle board, fibre board and other panels and boards (20.20); Manufacture of plastics in primary forms (24.16); Casting of iron (27.51) and casting of light metals (27.53).

For consistency reasons with the legal acts, four-digit classes are referred to as sectors throughout the text.

For example, under NACE four-digit sector 26.14 (Manufacture of glass fibers) one can find two ProdCom six-digit sectors: 26.14.11 (Silvers, rovings, yarns and chopped strands of glass fibers) and 26.14.12 (Voiles, webs, mats, mattresses, boards and other articles of glass fibers except woven fabrics). These in turn are further disaggregated into several ProdCom eight-digit sectors.

CO_2e is calculated using global warming potentials of the GHGs converted.

See http://ec.europa.eu/environment/ets/

See ec.europa.eu/enterprise/policies/sustainable-business/climate-change/energy-intensive-industries/carbon-leakage/index_en.htm.

See http://ec.europa.eu/clima/documentation/ets/docs/20090701_list_sectors.pdf.

See Sijm et al. (2006) for estimates of the CO_2 cost pass-through in Germany and the Netherlands; empirical and model data are presented that indicate that pass-through rates vary between 40 and 60%.

Eurostat reports the average national price in EU€ per kWh without taxes applicable for the first semester of each year for medium-sized industrial consumers (Consumption Band Ic, with annual consumption between 500 and 2000 MWh). Until 2007, the prices refer to the status on 1 January of each year for medium-sized consumers (Standard Consumer Ie with annual consumption of 2000 MWh).

For a number of sectors the data received from Member States were insufficient (i.e. covering only a very low share of EU-27 GVA). Company-level data were acquired through confidentiality agreements between a consultant on behalf of the European Commission and the companies involved. The procedure concerned the sectors with NACE codes 1592 (Manufacture of starches and starch products), 2415 (Manufacture of fertilizers and nitrogen compounds), 2020 (Manufacture of veneer sheets, plywood, laminboard, particle board and fibre), 2416 (Manufacture of plastics in primary forms), 2751 (Casting of iron) and 1542 (Manufacture of refined oils and fats).

See http://ec.europa.eu/energy/climate_actions/doc/2008_res_ia_en.pdf.

This is different from the interpretation offered by Cló (2010), who assumes that all allowances are freely given away in the case of carbon leakage risk, thus excluding the possibility of an auctioning factor that corrects total emissions.

And where needed, as identified in the qualitative assessment, at an even more disaggregated level.