

Industrial Competitiveness under Climate Policies: Lessons from Europe

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Mrs Chairman and Members of the Committee,

Thank you for the invitation to speak today and for giving me the opportunity to comment on the critical issues of industrial competitiveness under the European Union Emissions Trading Scheme (EU ETS). This topic is without any doubt one of the central pillars of Europe's policy to combat global climate change.

I offer my personal thoughts today based on my experience gathered from a broad range of work on conceptual and design issues as well as the practical implementation and the ex-post evaluation of the EU ETS.

After a steep learning curve during the pilot phase of the EU ETS from 2005 to 2007 which created valuable experiences on a large-scale emissions trading scheme for greenhouse gases and its introduction on the fast track, the key evidence can be summarized as follows:

- the EU ETS creates a robust carbon price signal, even during the recent economic crisis;
- we can prove abatement measures triggered by the carbon price signal even during the pilot phase of the EU ETS;
- design features beyond the cap, e.g. allocation of allowances, can have a significant impact on the economic efficiency of the scheme (less efficiency today is equivalent to higher allowance prices in the future); allocation can no longer be seen as a purely distributional matter;
- the EU ETS has significantly changed the scene; significant efforts to develop innovative mitigation options can be observed, also in fields in which even the technical feasibility of major emission reductions was subject to heated debates before the carbon price signal was created (iron and steel industry, cement production, industrial gases, etc);
- an evidence-based design of the scheme is crucial; if key design features are based on speculations (or even suspicions), the system becomes over-complex and creates unforeseen drawbacks – in the end simplicity and robustness are more valuable for all participating parties than efforts to achieve (non-achievable) micro-justice;
- the scheme created rents and significant windfall profits arising from the free allocation of allowances – mainly but not exclusively in the power sector (the

windfall profits for the German power sector alone are estimated at 20 billion Euro for the 2008-2012 period);

- an in-depth analysis of trade flows for the EU-27 in the last few years indicates that no significant changes have come about which could have been triggered by the introduction of the EU ETS.

However, industrial competitiveness and, more importantly, emissions leakage from the ETS regulated sectors to non-regulated sectors or regions are major concerns and must be addressed by suitable measures.

This is especially important for the trading periods from 2013 onwards when the EU ETS caps are tightened significantly and the basic allocation approach is shifted towards auctioning.

Two key issues must be carefully assessed with regards to carbon leakage:

- For which sectors should significant leakage effects be considered if no complementary measures are taken?
- Which measures are appropriate to combating carbon leakage without distorting the carbon prices signal and thus the incentives to implement cost-efficient emission mitigation measures?

The evaluation of a wide range of modelling exercises showed the merits and demerits of such approaches:

- the models present consistent and fundamental insights on system-wide effects;
- the results of the modelling exercises show a wide range of different results, mainly depending on different input parameters and different methodological results;
- the level of disaggregation in most of the models is not suited to identifying the leakage-relevant sectors in the necessary detail;
- leakage effects are linearized in many models whereas investment leakage is increasingly seen as the major leakage route.

Against this background, the identification of the leakage-relevant sectors within the EU ETS is based on a three step approach:

- a bottom-up analysis of direct and indirect carbon costs for industrial sectors based on statistical data at a high level of disaggregation (4-digit NACE);
- a bottom-up analysis of trade intensity for the respective sectors; and
- a supplementary qualitative analysis.

Although this approach is not perfect, it should be regarded as the most robust and appropriate one.

The analysis of carbon costs for the EU as well as for selected Member States (UK, Germany) showed a robust set of (a few) sectors which face significant carbon costs (at 30 € per metric ton of CO₂):

1. manufacture of paper and paper board;
2. manufacture of coke oven products;
3. manufacture of refined petroleum products;
4. manufacture of other inorganic chemicals;
5. manufacture of fertilizers and nitrogen compounds;
6. manufacture of bricks, tiles and construction products;
7. manufacture of cement;
8. manufacture of lime;
9. manufacture of basic iron and steel and of ferro-alloys;
10. aluminium production.

The total share of these sectors in the gross domestic product is less than 1.5% for Germany (a heavily industrialized country) and less than 1% in the United Kingdom (a country with a more service-based economy).

A more in-depth analysis of trade flows shows that the increase of carbon costs does not necessarily lead to leakage effects. Transport costs, other policies, other economic risks (currency, labour force, etc.), regulatory risks, customer links and relations are important factors which must be considered with regard to the relocation of productions possibly leading to leakage.

Since existing trade intensities can be seen as a robust indicator for the broad range of factors influencing relocation decisions, the initial idea for the bottom-up assessment of potential leakage was to combine carbon costs with trade intensities. With this approach some of those sectors which are typically linked to regional markets (bricks, tiles and construction products, cement, lime) would not have been assessed as leakage relevant.

However, the political deal on the revision of the EU ETS Directive led to a non-appropriate definition of leakage-relevant sectors:

- sectors with additional carbon costs (direct and indirect) of at least 5% and a trade intensity with third world countries of at least 10%;
- sectors with an additional carbon cost (direct and indirect) of at least 30%;
- sectors with a trade intensity with third world countries of at least 30%; and
- additional sectors which meet certain criteria laid down in the directive.

This approach goes beyond the initial concept of a robust leakage sector identification. The significant increase of sectors which can claim special leakage provisions, to a large extent solely based on the trade intensity trigger, will have impacts on the efficiency of the scheme and thus the future allowance prices.

The high ranking of trade intensity as a singular indicator becomes even more questionable if the patterns of trade flows are considered.

For many of the relevant products, the most important trade partners are OECD countries (USA for paper & paperboard, fertilizers & nitrogen compounds, other inorganic chemicals; Norway for aluminium, fertilizers & nitrogen compounds; Turkey for basic iron and steel) or other industrialized countries (Russia for aluminium, basic iron and steel, fertilizers & nitrogen compounds) whereas trade with China is less important for many carbon-intensive products (except in the case of other inorganic chemicals, basic iron and steel).

Thus, the introduction of carbon pricing in the OECD or other industrialized countries with carbon constraints (within national emissions trading schemes or within an OECD-wide carbon market) could remove a key share of the relevant leakage concerns.

If an effective identification of leakage-relevant sectors has been carried out, the question arises of how to deal with the issue within an ambitious climate policy and an emissions trading scheme:

- Border adjustments are the most popular measures for limiting carbon leakage effects from a textbook perspective. However, the implementation of border adjustments faces a wide range of practical, legal and political challenges. Thus, the EU has decided (driven by Member States with a strong focus on international trade) not to go for this option.
- Free allocation can be used as compensation for carbon costs. However, if the allocation is not adjusted for plant closure or production levels, the incentive for leakage is not removed on the one hand. On the other hand, the updating of free allocation will distort the carbon price signal and decrease the efficiency of the scheme. Thus, the EU decided to offer free allocation based on a 10%-best benchmark scheme to sectors regarded as having leakage concerns in combination with a plant closure provision.
- Using the revenues from allowance auctions for direct compensation can be an interesting option for providing compensation for leakage incentives without major distortions of the price signal taking place. Thus, the EU allows the Member States to compensate industries with a high exposure to indirect carbon costs (from increased electricity prices) with state aid measures.
- The introduction of broader climate policies in other industrialized or developing countries can remove leakage concerns on a broader scale. Thus, the EU will review the compensation measures for the leakage-concerned sectors if the global scene has changed.

If the EU would have to design the provisions to deal with leakage concerns from scratch, a more tailored approach would probably emerge:

- For the sectors with a significant potential for operational leakage (cost-driven relocation of production to non-regulated regions or sectors), free allocation with plant closure provisions could be seen as the most suitable approach.
- For the sectors with a significant potential for investment leakage (cost-driven relocation of investments to non-regulated regions or sectors), direct subsidies for investments could provide a sufficient countermeasure to combat leakage.

All in all it should be pointed out that leakage is a serious issue in a world of different carbon prices. Second, serious leakage concerns must be raised for only a few carbon-intensive products or sectors. Third, from an EU perspective many leakage concerns are related to trade flows with other OECD or industrialized countries. Forth, tailored approaches can be developed which remove incentives for leakage and maintain a non-distorted carbon price signal – a fundamental basis for effective climate policies. Last but not least, it should also be considered that carbon pricing provides strong incentives for the growth of new and future-proof industries.

I hope the above comments are helpful and look forward to your questions. Thank you.