

How did the EU ETS affect CO₂ emissions? A model-based ex-post assessment of the German manufacturing industry

The EU Emissions Trading Scheme (ETS) started operation in 2005. The first trading period ended in 2007 and aimed to gather experience with the functioning of the system. The second trading period was running from 2008 to 2012 designed in order to achieve the Kyoto-Protokoll targets for the EU. The third trading period started in 2013 and will be going until 2020. Here, the allocation of emissions will be much more unified than in the second period, where much was still defined by the member states.

The system covers about half of the EU's CO₂ emissions, of which the main share is coming from the power sector. However, the manufacturing industry also accounts for a large share of EU ETS emissions, mainly from the iron and steel and cement production, but also the paper, ceramics and glass industries. Together, these industries accounted for nearly 400 Mt of CO₂ emissions in 2010 in the scope of the ETS.

The impact of the ETS on emission abatement directly depends on the price of emission certificates, the so called EU Allowances (EUAs). While the price was about 20 Euros/EUA (1 EUA = 1 t CO₂) in 2008 it fell sharply when the economic crisis hit production in energy intensive industries in 2009 and the average price fell to about 13 Euros. In 2012, the last year of the second trading period, the average price even went down to about 7 Euros.

While it is generally agreed that most of the observed emission reduction in the ETS sector was resulting from the decrease of industrial production as well as the diffusion of renewable energies (driven by other instruments), it is relatively unclear what the direct mitigation impact of the EU ETS was. This is particularly true for the manufacturing industry, as most studies so far addressed the power sector.

The goal of our paper is to analyse the impact of the EU ETS on emission reduction in the manufacturing industries. We conduct an ex-post assessment for the second trading period from 2008 to 2012.