

Negative Carbon Leakage: New Evidence from South Asian Countries

The growth rate of carbon-intensive exports from India, Pakistan and Sri Lanka to countries that have ratified the Kyoto protocol (in relation to exports to non-ratifying countries) fell by a factor of 0.37 between 2000 and 2012. Concerns that the Kyoto Protocol may drive the growth of carbon-intensive exports from South Asian countries could therefore be overstated and should not be used to shape the development of climate and trade policies. Instead, research should be undertaken to see why the Protocol is affecting exports in the way it is. This would allow policy makers to build upon current positive trends.

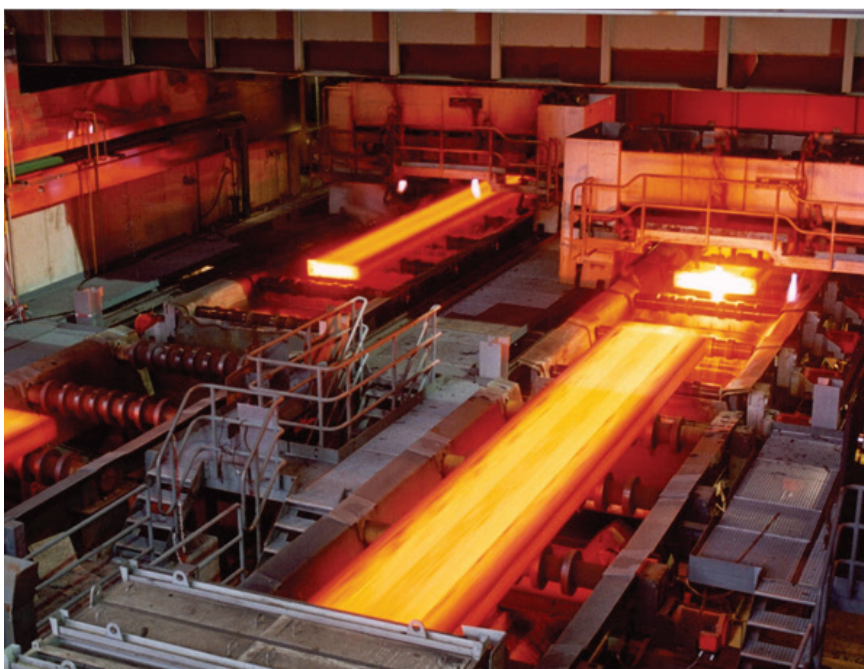
Background

The ratification of the Kyoto Protocol by a country implies that country has more stringent carbon regulations than nations that are not bound by the Protocol. As a result, the production of carbon-intensive products is cheaper and easier in countries that are not Kyoto signatories. It is thought that this imbalance can encourage the export of carbon-intensive products (such as cement) from non-Kyoto countries to nations that have ratified the Protocol. This effect is known as Carbon Leakage. It is a major reason cited for the perceived ineffectiveness of the Kyoto Protocol.

However, there is a lot of conflicting evidence around the hypothesis of carbon leakage. To provide much needed information on this topic, Surender Kumar and Purna Prabhakar from the University of Delhi and NCAER, analysed the impact of Kyoto Protocol ratification on the export of selected commodities from India, Pakistan and Sri Lanka, none of which is a Kyoto signatory.

Approach

The study used the gravity model approach. The gravity model of international trade predicts bilateral trade flows based on the economic size of trading parties and the distance between them.



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The study used data on the export of 18 selected commodities from India, Pakistan and Sri Lanka between 2000 and 2012. Exports to 11 Kyoto signatories and 24 non-signatories were assessed.

Findings

In the case of India and Sri Lanka and for the combined exports from all three study countries (i.e. India, Sri Lanka and Pakistan) the Kyoto protocol has resulted in negative carbon leakage. In other words, the growth rate in exports of carbon-intensive products to countries that have ratified the Protocol has actually dropped (in relation to exports to countries that are not signatories).

In the case of Pakistan, the existence of positive carbon leakage could not be ruled out. However, the effect, was commodity-specific and modest in magnitude.

The effect of the climate policy on exports is commodity-specific, due to variations in carbon intensities across sectors. For example, the fall in the growth rate of carbon intensive exports from India to Kyoto-ratifying countries (i.e. the extent of negative leakage) was largest for the cement sector, where the growth rate of exports fell by a factor of 4.975. It was smallest for the agriculture sector, where the growth rate of exports fell by a factor of 0.034.

Overall, for all three countries, the magnitude of the negative carbon leakage caused by the Kyoto Protocol was more pronounced for more carbon-intensive sectors (and vice-versa).

Recommendations

It is thought that the negative carbon leakage highlighted in this study may be due to the diffusion of environmentally benign technology, to the 'abatement resource' effect and to the impact of effective variations in energy prices across countries. For example, in the case of India, negative carbon leakage can be partly explained by India's growing comparative advantage in more energy-efficient medium and high technology industries, which has been improving since the late 1990s.

These possibilities of negative leakage, contrary to the expected positive carbon leakage, presents a case against trade distorting policies like the Border Carbon Adjustment (BCA) tax that are implemented to combat the possible impact of the leakage phenomenon. BCA tax is a form of a carbon tax that charges the imported goods in a way equivalent to domestic production in the importer country. It has been argued that a BCA measures aim to protect the domestic producers facing stringent climate change policy measures against the foreign producers that are not bound to follow such policy measures. However, there are possible issues associated with the BCA measures. This includes its possible incompatibility with the WTO. Furthermore, as discussed among the policy makers and researchers, these measures would reduce the welfare levels of developing countries by restricting their exports to policy binding countries.

Therefore, the evidence of negative carbon leakage provided by this study suggests that current concerns regarding positive carbon leakage should not be used to shape future climate and trade policies. It also indicates that more research should be undertaken to explain the reasons for negative carbon leakage in India and Sri Lanka. When these reasons have been highlighted, policy makers can then use them to maximize the positive impacts of the Kyoto Protocol and other similar environmental agreements.

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