

Production vs Consumption

There are two different approaches to calculating a country's carbon footprint. We can add up all the emissions that are produced within that country – this is called production-based accounting – or we could add up the emissions associated with the goods and services consumed within that country – this is called consumption-based accounting. Another way to think about it is that with production-based accounting, the polluter pays, whereas with consumer-based accounting, the user pays.

Currently, under the Paris agreement, carbon emissions targets are based on production-based accounting. This approach alone is rather unfair because it means that richer countries can reduce their carbon emissions without reducing carbon consumption. For example, although the UK has been deindustrializing within its own national borders it has increased the amount of food it imports from overseas, leading to the offshoring of emissions.

Developing economies such as China and India are often blamed in the media for global warming but 20% of China's emissions are generated in the production of exports. Is it fair to attribute these emissions to China when they are being produced for the demand of other countries?

One solution would be that, in addition to production-based targets, countries also adopt consumption-based targets. In the past it has been argued that consumption footprints are too difficult to calculate but recent developments in trade models mean it is now perfectly possible. Part of my research is to look at the consumption footprint of the UK with respect not just to a carbon footprint but also biodiversity and socioeconomic footprints. This work could guide policy makers to choose more sustainable trade options.