

[THE CARBON FOOTPRINT OF NORWEGIAN HOUSEHOLDS]

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Overview

The aim of our study is to investigate the relationship between household expenditure and consumption-based carbon needs for Norway. A particular emphasis is put on the importance of trade in contributing to the carbon footprint of Norwegian households and we explore the expenditure patterns on the carbon embodied in imported goods at a household level.

The choice of Norway for our study is due to the specificities of this country. On one hand, its power generation sector is almost entirely based on hydropower and is therefore 'clean' of greenhouse gases emissions. On the other hand, Norway is largely dependent on imports, which are produced via a variety of technologies that are generally 'dirtier' than those found in Norway. Properly estimating the share of emission embodied in imported goods therefore becomes crucial in order to properly generate the carbon footprint of households in that country. Although the study focuses on Norway, we believe that our results convey to countries which import a significant share of their goods and rely on a clean power generation sector.

Methods

The carbon footprint of a Norwegian household is the sum of its direct emissions, the emissions embodied in goods produced domestically and the emissions embodied in goods produced internationally. To estimate the direct emissions and the emissions embodied in goods produced domestically and internationally, we combine data from the 2007 household expenditure survey collected by Statistics Norway, inter-industry input-output table and data on emissions intensities obtained via the Globale Trade Analysis Project database. Correspondance tables are created in order to extract usable data from these various sources. The analysis is based on the use of monetary units, although physical units are used whenever possible.

Results

We find that a significant share (50%) of the carbon footprint of Norwegian households is due to the carbon embodied in goods, with the rest being associated to the carbon embodied in goods produced domestically and from direct emissions. In addition, we explore the share of the household expenditure in various sectors (e.g.: energy, housing, food) and relate this to the direct and indirect emissions, showing that rich household have a tendency to consume from sectors which are more carbon-intensive.

Conclusions

By targeting territorial-based emissions, Norway ignores the emissions associated to the consumption of good produced abroad, which contribute to a large extent to the nation's carbon emissions and faces the threat of carbon leakage. Moreover, it is possible to implement policies aiming at reducing consumption-based emissions, while at the same time leaving poorer households unharmed by these policies, because of the tendency of Norwegian households to consume in different sectors depending on the level of their expenditure.