Inter-country comparison of carbon footprint with purchasing price index adjustment

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Measuring the impact of economic activities in units of carbon dioxide emissions (carbon footprint) is essential information to frame policies addressing the responsibility and behaviour of economic agents towards global warming. Recent analyses based on the OECD's Inter-Country Input-Output (ICIO) database have contributed to provide estimates of country and sector-specific CO_2 emissions embodied in domestic and foreign final demand for numerous economies. Such estimations have already improved our understanding on the distribution of CO_2 emissions along global value chains. However, these CO_2 analyses based on input-output tables in nominal monetary value are heavily biased due to considerable price differences across countries on the one hand, and differences in the electricity generation mix of countries on the other hand. In this paper, we compute CO_2 emissions intensity of the final demand adjusted by consumption price differences for the 35 OECD members and major non-OECD economies. Our results show that adjusting CO_2 intensity by purchasing price parity (PPP) substantially affects the countries' ranking according to their demand-driven CO_2 intensity. Taking a closer look at sectoral results, we observe a particularly high difference in the ranking for the food, construction and transportation sectors. High differences between adjusted and non-adjusted final demand prices for the above-mentioned sectors may be attributable to labour-intensive production structures.