

Generational effects in UK Household Carbon Footprints

Topic: Consumption-Based Accounts of Household Types

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Aligning household expenditure surveys with Environmentally-Extended Input-Output databases allows for the calculation of carbon consumption-based accounts of household types. Many studies have used this process to understand the differing Carbon Footprints of income groups, age groups and household located in different subnational regions. The United Kingdom's Living Costs and Food Survey (LCFS) has origins in the 1950s and the modern-day version of this household survey has a consistent dataset with a time series of 20 years from 2001 to 2020. The UK is also one of the few countries in the world to report its Consumption-based Greenhouse Gas Emissions as an Official Statistic and presents these as a timeseries from 1990-2020. These are calculated using the UKMRIO database.

In this paper we use the LCFS aligned with the UKMRIO, and rather than calculating the carbon footprints of age groups, we follow cohorts through time, assessing the changing impact of the Greatest, Silent, Babyboomer, Gen X, Millennial and Gen Z generations. We find that in the UK, households increase their emissions as they reach retirement age, then reduce once they reach very old age. But there may also be a generational effect in play. Babyboomers took on an even greater share of emissions than the generation before them as they reached retirement, but Gen X did not increase their emissions share to the levels of Babyboomers in middle age. In 2020, Millennials use even less of their fair share compared to Gen X at a similar life stage.

Between 2001 and 2020 the UK's Carbon Footprint reduced, but the drivers behind this reduction are complex. There have been reductions in the emissions intensity of products mainly due to the decarbonisation of the electricity sector. There have also been reductions due to a change in overall spend after the global financial crisis in 2008 and the COVID-19 pandemic in 2020. We also observe differences in the reduction by generation. But is there evidence of a "generational effect"? Has the UK's footprint reduced due to a reduction in the number of "high-carbon" Babyboomer and Silent generation headed households and an increase in the number of "low-carbon" Millennials, or is the reduction due to the change in spend by households as they age? Will future generations change their expenditure habits as the age in the same manner as previous generations or is there evidence that spend patterns are unique to cohorts?

To unravel the story of the change in UK consumption emissions and better understand the role of generational change we use a structural decomposition analysis to determine the drivers of difference in carbon footprint. We first assess each generational cohort to determine the role of population change, total spend and spend by product on their changing impact. We then combine the decompositions to the entire UK to quantify the role of generational change. Understanding the differing cohort impacts and their contribution to emissions change has use in future climate policy as we strive to both predict future consumption emissions pathways and consider targeted emissions reduction policies by different types of household.