

Carbon impacts of generational and consumption changes for an ageing Europe

Topic: Input-Output Analysis: Sustainable Production and Consumption Policies - II

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Consumption patterns and behaviour have changed over the years and even more so in a geographical area such as Europe, which is involved in a progressive process of population ageing. The group of senior age (60+) is increasing its proportion of all citizens. The impacts of the lifestyles of an ageing society on global carbon emissions are poorly understood.

In this paper, we quantify the evolution of greenhouse gas (GHG) emissions driven by European (EU) household consumption across age groups from 1999 to 2015. To do it, we first develop a multi-regional and multi-sectoral input-output environmentally extended (emissions) model, which differentiates the consumption of European households by four age groups. The MRIO table for the year 1999 and 2015 provided by Exiobase 3 is used according to the NACE classification and coupled with the information on consumption patterns by age groups from Eurostat necessary for the breakdown of European households by different age groups. And, on the other hand, the structure of consumer spending (per thousand) is collected according to the COICOP classification. With this, we analyse the disparities in carbon emissions driven by the four different age groups by studying the direct and the indirect (embodied) carbon emissions driven by each age group of EU households. We also study the unequal distribution of environmental impacts from 1999 to 2015 in each age group and the evolution of these consumption patterns.

Then, we address a set of scenarios to simulate the carbon impacts of alternative projections of the consumption structure by age group up to 2050. To calculate this projection, we base our simulations on the previous evolution from 1999 to 2015 to launch alternative trajectories from 2015 to 2050. We also use the population data for the years 2015 and 2050 (projected) of the different age ranges of the household from Eurostat. The scenarios simulated combine the change in demand by household group, and also by different policies (regulations, changes in environmental awareness, fiscal policies) that can be applied to promote the change. To our knowledge, this is the first study to combine such analysis by age group for all countries of Europe together with a range of scenarios to explore environmental and economic outcomes associated with changes in household consumption choices, specifically in the group of senior age, considering the entire global supply chain.

Our results aim to shed light on the debate about demographic changes and environmental impacts and show a European-wide comparison of the emissions of the different age groups, highlighting the degree of responsibility of each household age group, and their respective changes over time.