Demographic Changes and its Impacts on Consumption and Greenhouse Gas Emissions in Brazil: a computable general equilibrium model approach

Topic: CGE & Demography
Author: Terciane Sabadini Carvalho
Co-Authors: Flaviane Souza Santiago, Fernando Salgueiro Perobelli

In recent years, the debate on issues related to demographic changes and their impacts on the economy has increased. However, demographic changes affect not only variables such as economic growth and the labor market, but also aggregate consumption, and especially the composition of this consumption. These changes in population composition may occur in the coming decades in many parts of the globe, and their effects on the composition of consumption, notably on energy demand and emissions are not yet known. In this context, this article aims to estimate the changes in the pattern of consumption in Brazil due to the changes projected in the age pyramid in 2050 and the consequences of these changes on CO2 emissions. For this, projections will be made using a recursive dynamic computable general equilibrium model (CGE) considering 67 sectors and 6 age groups for the Brazilian economy. As far as we know, this is an unprecedented study for Brazil, being the first to attempt to evaluate the impact of the population aging on consumption patterns and CO2 emissions. The dynamic CGE model can capture both the direct effects of this change, the indirect effects via inter-sectoral linkages and the substitution effects over time. Another advance of the research is to make the analysis more appropriate estimating different elasticities by age groups and sectors.