

Analysis of the distributional impacts of the Spanish climate and energy policy using a Dynamic-econometric IO model

Topic: Linking micro-data from consumption surveys and IO models: from theory to practice

Author: Iñaki Arto

Co-Authors: Kurt KRATENA, Xaquín García-Muros, Ignacio Cazcarro

In order to meet the European Union's energy and climate targets for 2030, Member States are required to establish national energy and climate plans (NECP) for the period 2021-2030. These NCEPs integrate national the energy and climate objectives, targets, policies and measures. In the case of Spain, the NCEP establishes a reduction of 20% in greenhouse gas emissions by 2030 with respect 1990, and a contribution of renewable energies to the final energy consumption of 40% by 2030. The NCEP represents an important transformation of the Spanish energy system, with implications not only in the energy-environmental sphere but also in economic terms.

In this paper we analyze the economic impacts of Spanish NCEP using a new-Keynesian dynamic econometric model (DENIO: Dynamic Econometric Input-Output model). The model has been developed using data from different sources such as the Spanish National Statistical Institute (National Accounts, Supply-Use tables, micro-data of the Household Budget Surveys, micro-data of the Statistics on Income and Living Conditions, etc.), and Eurostat (Physical Energy Flow Accounts). DENIO is a detailed model with a breakdown of 74 industries, 88 products, 16 consumption categories and 22,000 types of households. The model allows analyzing the economic impacts of the NCEP, with special emphasis on the distributional effects across different household types.

The analysis shows a positive impacts in terms of increase in the expenditure of lowest income households. We also find that the increases in energy efficiency, and the associated reduction in the energy bill, have a positive impact in single people living alone, retired people living alone and single-parent families.