# An integrated MRIO - CGE model for studying water and production reallocations in Spain

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Author: Cristina Sarasa
Co-Authors: Ignacio Cazcarro, Julio Sánchez Chóliz, Rosa Duarte

Over the last years, two tools have sparked a growing interest with regard to their potential usefulness in solving environmental and economic problems. This paper proposes to combine MRIO and CGE tools in order to take advantage of the opportunities offered by both models for analyzing reallocation criteria in the Spanish economy. The main objective is to assess the economic and environmental impacts of alternative production distributions following different reallocation criteria. We specifically focus on agricultural and agri-food sectors through their full supply chains for the Spanish economy, which show important asymmetries within different regions as a consequence of important resources imbalances.

For this purpose, we first design a CGE model from the information of a MRIO for Spain, considering all 17 Spanish regions, plus the European Union and the rest of the world for the year 2005. Additionally, water flows and water footprints are computed. We then conduct sensitivity analyses on the key elements of model specification in order to provide a model which is consistent with empirical evidence of the economic effects of scenario analysis. Thirdly, we address the design of possible geographical production reallocation policies based on different criteria through alternative technological and fiscal measures. These scenarios focus on improving production distribution in accordance with natural resources distribution. Income and water variations are evaluated to provide guidelines for public deciders hand in hand with economic and environmental impacts.