Integrating sustainable and inclusive wellbeing into the macroeconomic model FIDELIO

Topic: Sustainable Inclusive Wellbeing (Beyond GDP) in Input-Output Analysis
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There is increasing recognition that society needs to move beyond gross domestic product (GDP) as its key success indicator. In the WISE Horizons project, we are developing a beyond-GDP stock-flow accounting and modelling framework for sustainable and inclusive wellbeing, based in input-output analysis. In this paper we apply this way of thinking to the macroeconomic model FIDELIO with a focus on inclusivity. We extend FIDELIO with distributional capabilities and apply this to circular economy policy modelling.

FIDELIO stands for Fully Interregional Dynamic Econometric Long-term Input-Output model and is a multi-region, multi-sector, input-output model (Rocchi et al., 2025). It covers 27 EU Member States and its 18 main trading partners and one rest-of-the-world region, with 64 industries and 64 products (NACE 2 A*64) and 6 categories of final use. The core data underlying FIDELIO are the FIGARO Supply-Use Tables, an official dataset maintained by Eurostat and the JRC that details the interlinkages between industries, products, and countries (Remond-Tiedrez and Rueda-Cantuche, 2019). This database is further enhanced by the FIGARO National Accounting Matrices (FIGARO-NAM), which extend the tables to include income generation, distribution, and capital accounts as reported in the System of National Accounts (Pedauga et al., 2025).

We are extending the model in two ways to include distributional aspects, on both the income generation and consumption side. For consumption, the latest version of the model has 52 COICOP categories of final consumption, according to the latest COICOP 2-digit classification. We will split these into quintiles using Eurostat data on the structure of consumption expenditure by income quintile. In this way, we create five types of households with their own consumption patterns, with for instance proportionally more/less basic products and services versus luxury products and services. With this, it becomes possible to for instance analyse how the effects of policies result in price changes for which people.

On the income side, we will make use of data from distributional national accounts (Chancel et al. 2025; Eurostat). We will split income categories like disposable income, property income, and gross saving into quintiles, making it possible to analyse policy effects on different income groups.

To show how these distributional capabilities of the model can be applied, we will look at distributional impacts of circular economy policies. We will make use of the circular economy modelling work done by the JRC, which has linked the FIDELIO input-output structure to bottom-up Life Cycle Assessment (LCA) and Material Flow Analysis (MFA) data on steel, aluminium, cement and concrete, and plastics (Walker et al., 2025). Subsequently, they model three scenarios towards 2050: a baseline decarbonisation scenario with trends identified in the Global Energy and Climate Outlook 2023, a scenario complying with EU CE targets where materials are increasingly recycled and primary materials are substituted for secondary ones, and an ambitious CE scenario with more reduce and reuse measures. We will add a distributional analysis to this, such that conclusions do not only relate to the environmental potential of the circular economy but also to inequality aspects.

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