EUROPEAN CENTRAL BANK

EUROSYSTEM

Linking macro and micro household balance sheet data – time series estimation

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Importance of linking micro and macro data

- Need for timely distributional measures for household income, saving and balance sheets

  Stiglitz report, ESSC Vienna memorandum

- ESCB Expert Group on Linking Macro and Micro Data

  Understanding and quantifying differences between macro and micro data on household wealth and indebtedness

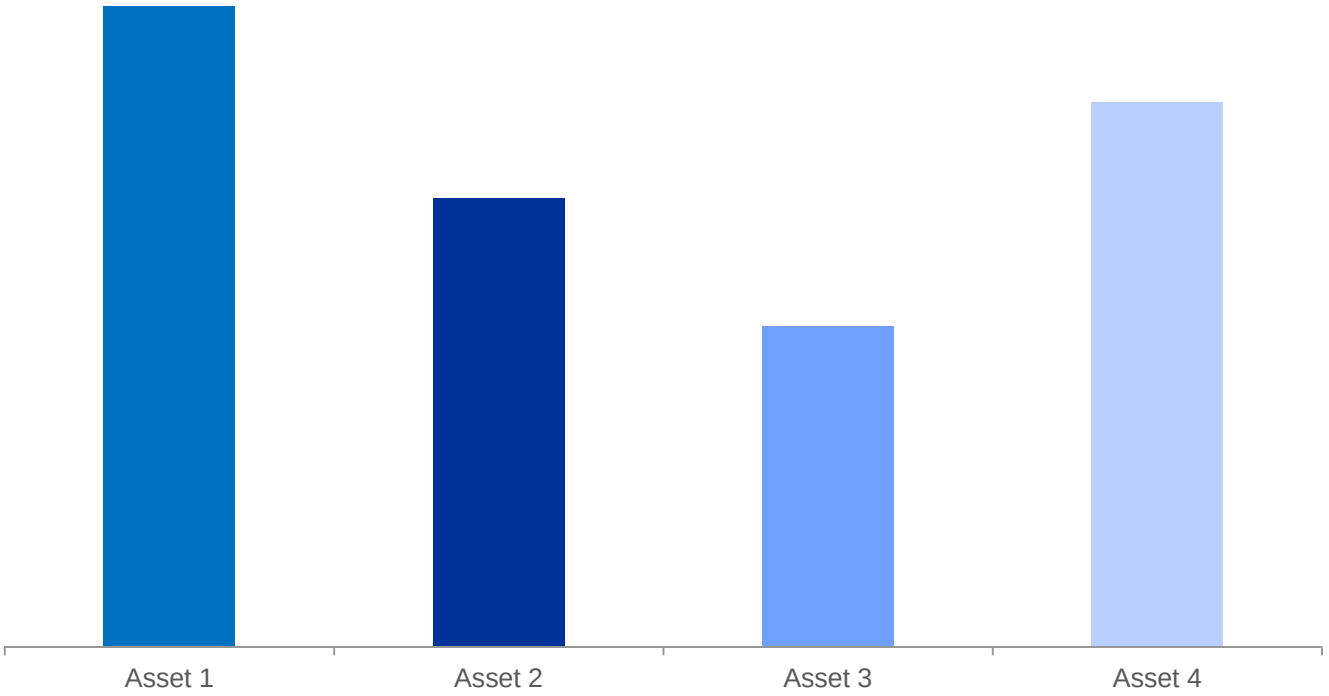
In this presentation:

- We combine macro and micro data to estimate **more timely distributional data**
- We focus on **debt and liquid financial wealth** for **Germany**, **Spain**, **France**, **Italy**
- Liquid financial wealth = sight accounts + savings accounts + mutual fund shares + bonds + quoted shares
  Items with high micro-macro comparability (EG-LMM)

Distributional national accounts (DNA) indicators

The methodology applied in this paper

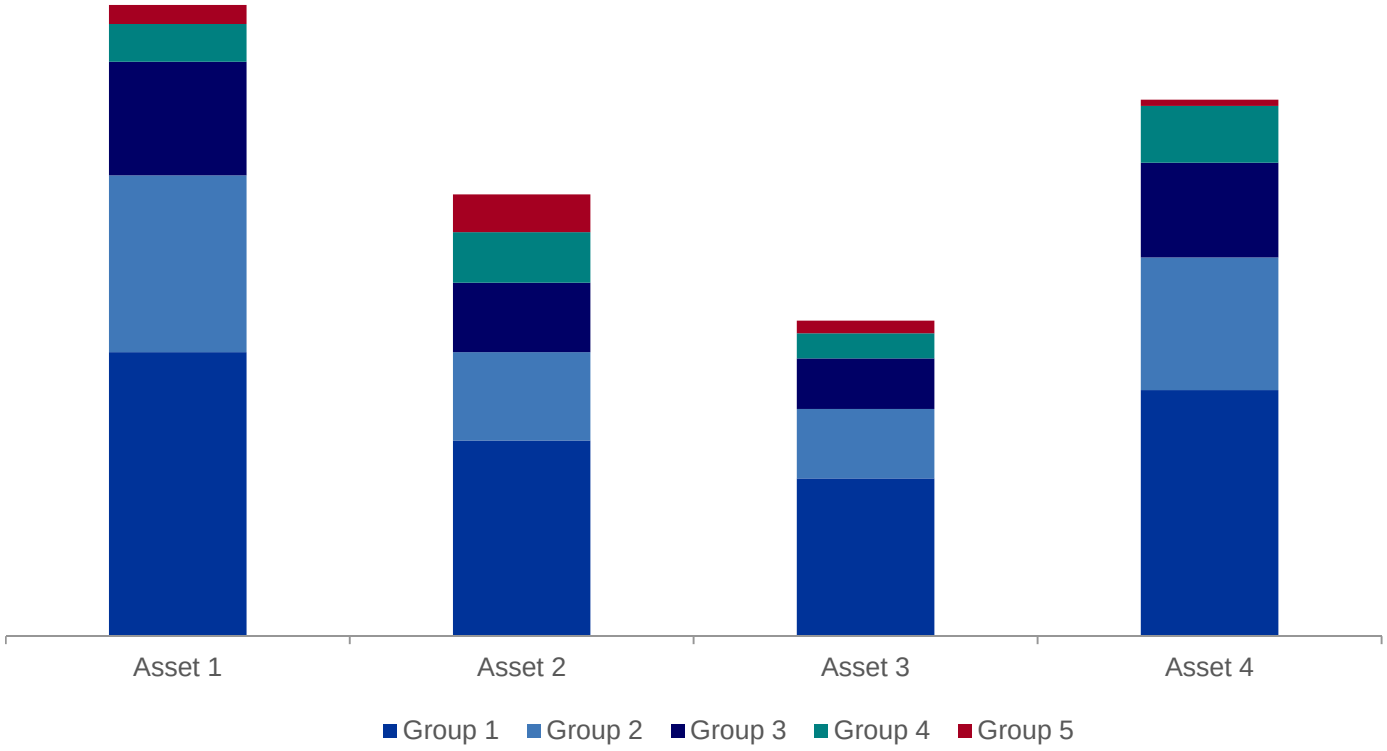
Step 1. Take levels of wealth/debt from macro data



Distributional national accounts (DNA) indicators

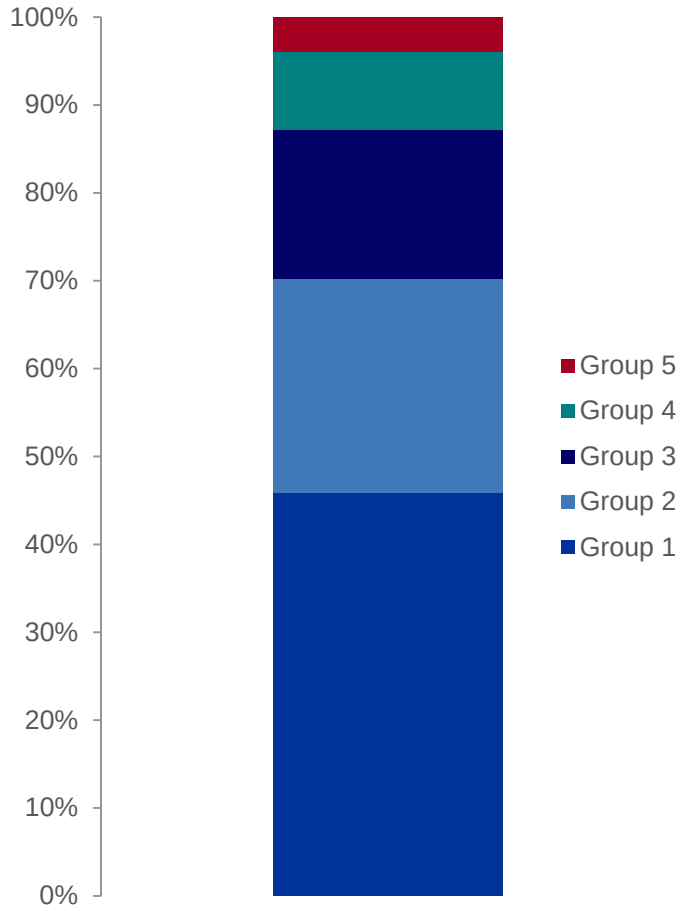
Step 2. Calculate/estimate distributions from micro data and apply to macro figures

Both steps at the instrument level



Distributional national accounts (DNA) indicators

Step 3. Sum up different instruments to get the distribution of the wealth concept applied



Estimating the future (or current) distribution

- Time t: macro and micro data available
- Time t+1: macro data available, micro data not

Macro approach

- No change in the distribution within individual assets, apply observed distributions from time t to macro data from time t+1

Meso approach

- Estimate the changes in wealth and debt at the household group level, using external data as a proxy
- Re-calculate distributions and apply to macro data

Micro approach

- Simulate changes in wealth and debt at the household level
- Re-calculate distributions and apply to macro data

Applied meso approach

- Change in the distribution of **financial income** (EU-SILC) as a proxy for a change in the distribution of **financial wealth** (HFCS)
- Change in the distribution of **interest payments on mortgages** (EU-SILC) as a proxy for a change in the distribution of **liabilities** (HFCS)
- The relation between interest payments and debt robust at macro level, and consistent with EU-SILC/HFCS data

Limitations:

- The relation between financial income and financial wealth much less consistent
- Only the financial income aggregate available in EU-SILC

Applied micro approach

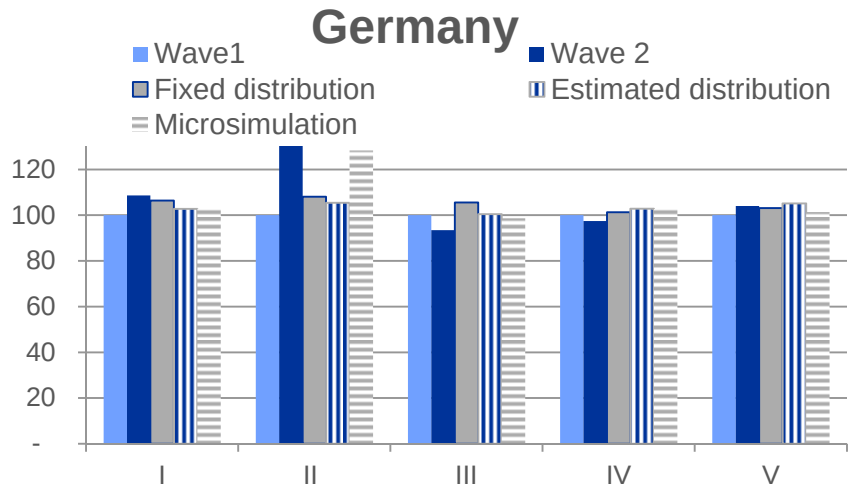
- We simulate the effect of recent macroeconomic changes on households at the micro level

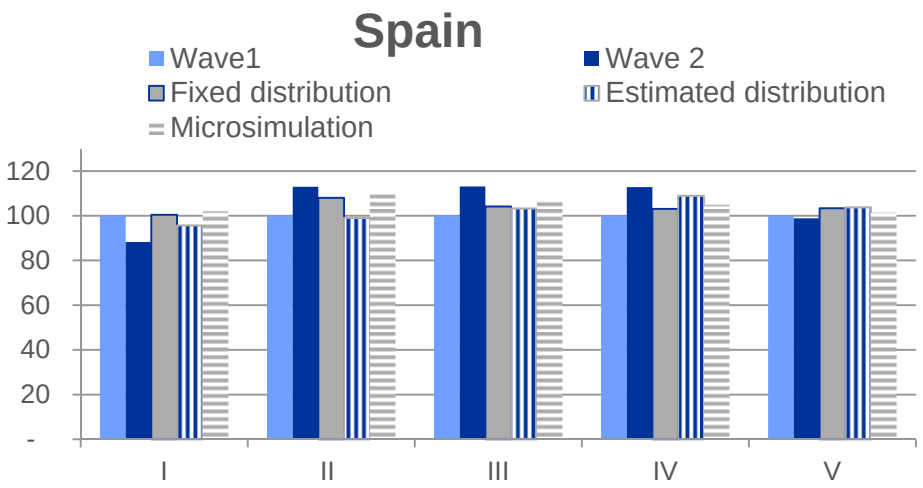
- 3 Steps in the simulation:
  - Update mechanically the various wealth components
    - Using house price indexes, indexes of quoted and unquoted stocks and bonds
    - debt is assumed constant in real term
  - Model the change in unemployment
    - work status of individuals is modified to reach the target unemployment rate
    - labour income of the individuals for whom the work status changed is updated
  - Model the change in the portfolio due to the income shock
    - If increase in income: compensation by selling liquid financial assets
    - If decrease in income: purchase liquid financial wealth/pay off debt

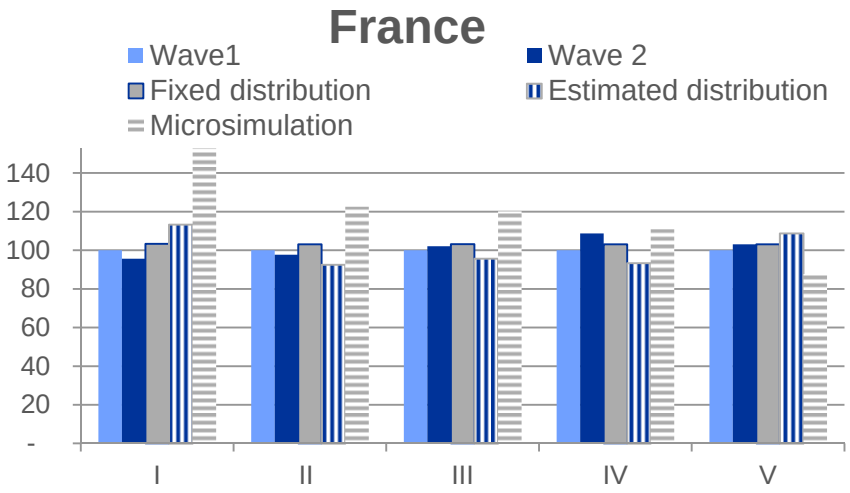
- The first 2 steps is a replication of the model implemented by Ampudia et al. (2014)

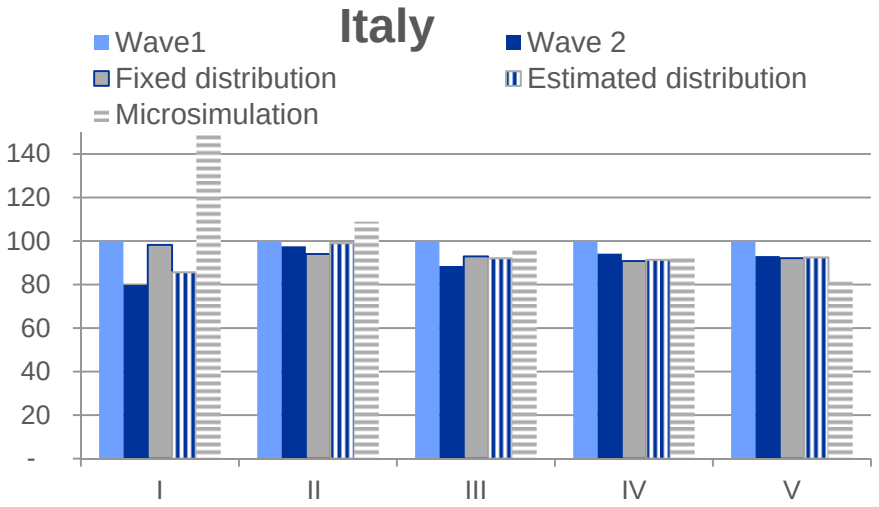
Results: change in liquid financial wealth per capita

Wave 1 = 100



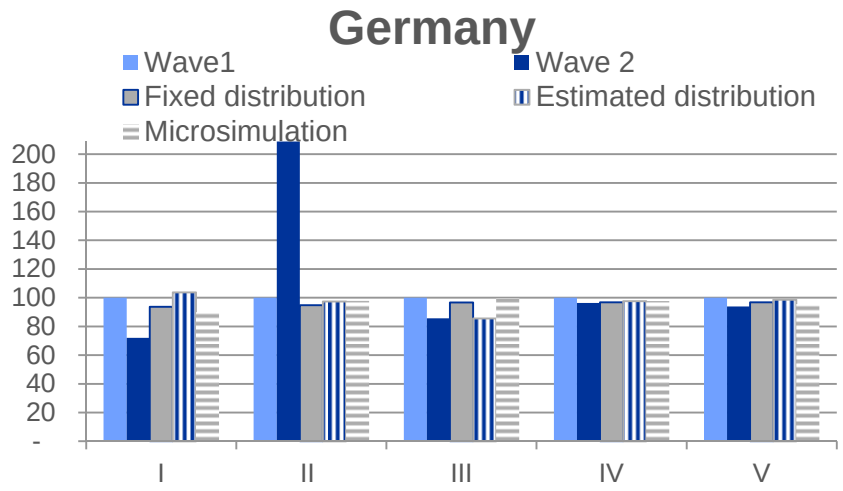


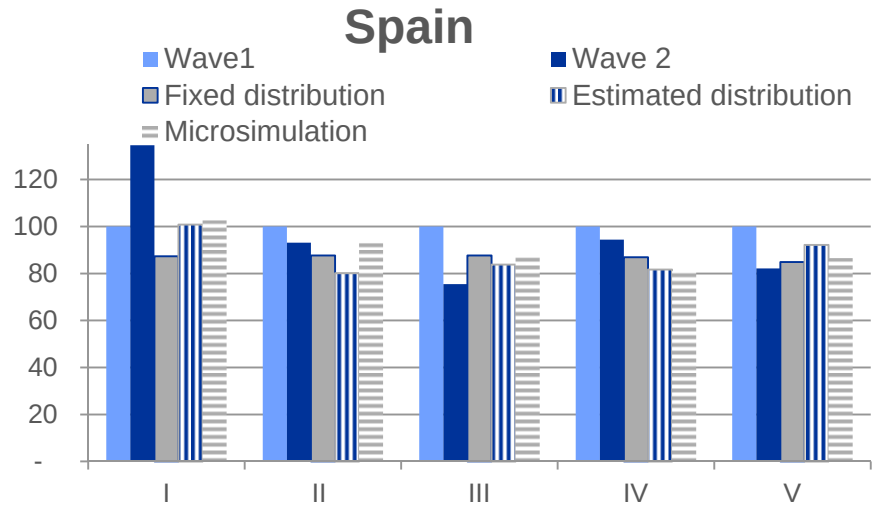


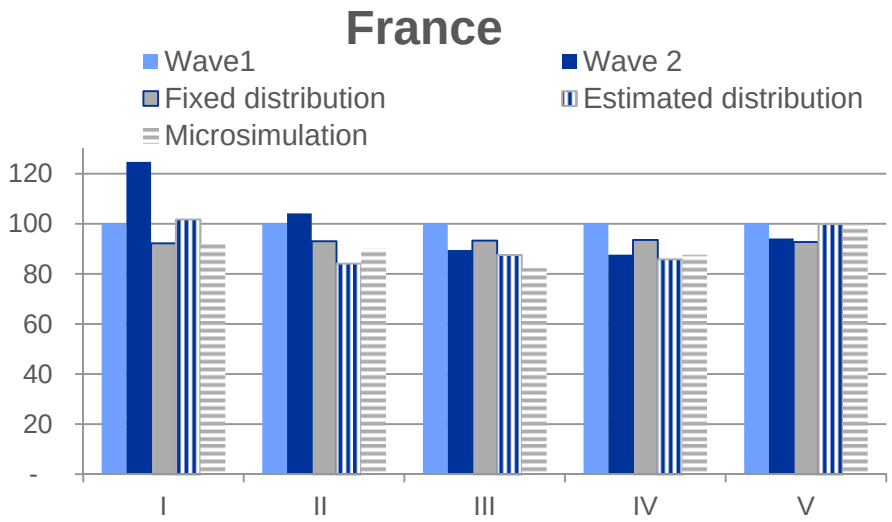


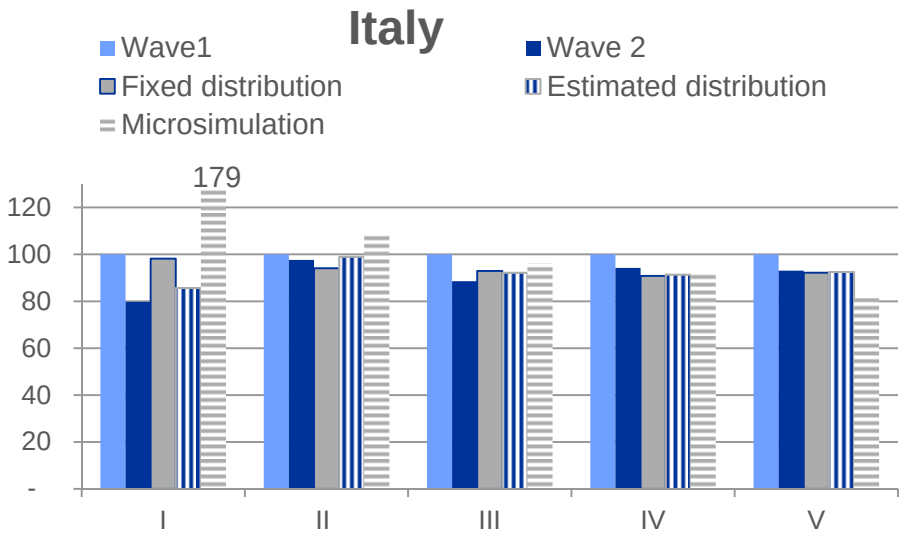
Results: liabilities per capita

Wave 1 = 100









Conclusions and way forward

No model produces perfect results

- Each country should select a suitable model

Liquid financial wealth

- Meso approach works rather well in Italy and Spain
- Micro approach provides promising results for Germany

Liabilities

- Neither the meso-level estimation nor microsimulation provide reliable results
- Way forward: accounting for sale or purchase of real assets