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Inequality and Structural Reforms: lessons from policy. **Evidence from the EUROMOD microsimulation model**

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Research Centre, Brussels, 19th June 2017

Outline

1. What does EUROMOD (microsimulation) bring ?
2. Evidence on the equity impact of reforms:
 - i. Descriptive evidence
 - ii. Dynamic scoring of tax reforms
 - iii. Progressive tax systems and automatic Stabilisation.
3. Summary & way forward.

What is EUROMOD?

EUROMOD → **EU microsimulation model**,
University of Essex. www.euromod.ac.uk

- **Micro**

- Unit of analysis is the individual and the household, EU-SILC survey data.

- **Simulation**

- Calculate tax liabilities and benefit entitlement on the basis of the information reported in survey data

- **EU**

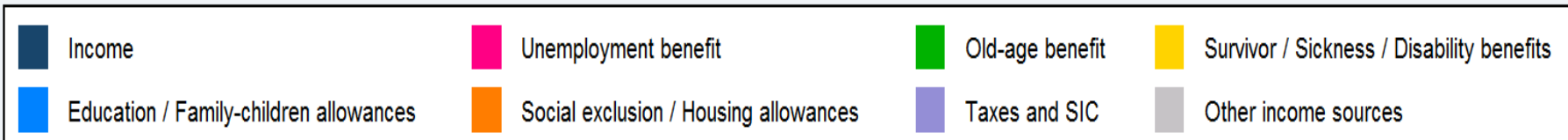
- Covers in a consistent manner the 28 EU countries

What does EUROMOD bring for the analysis of inequality and reforms ?

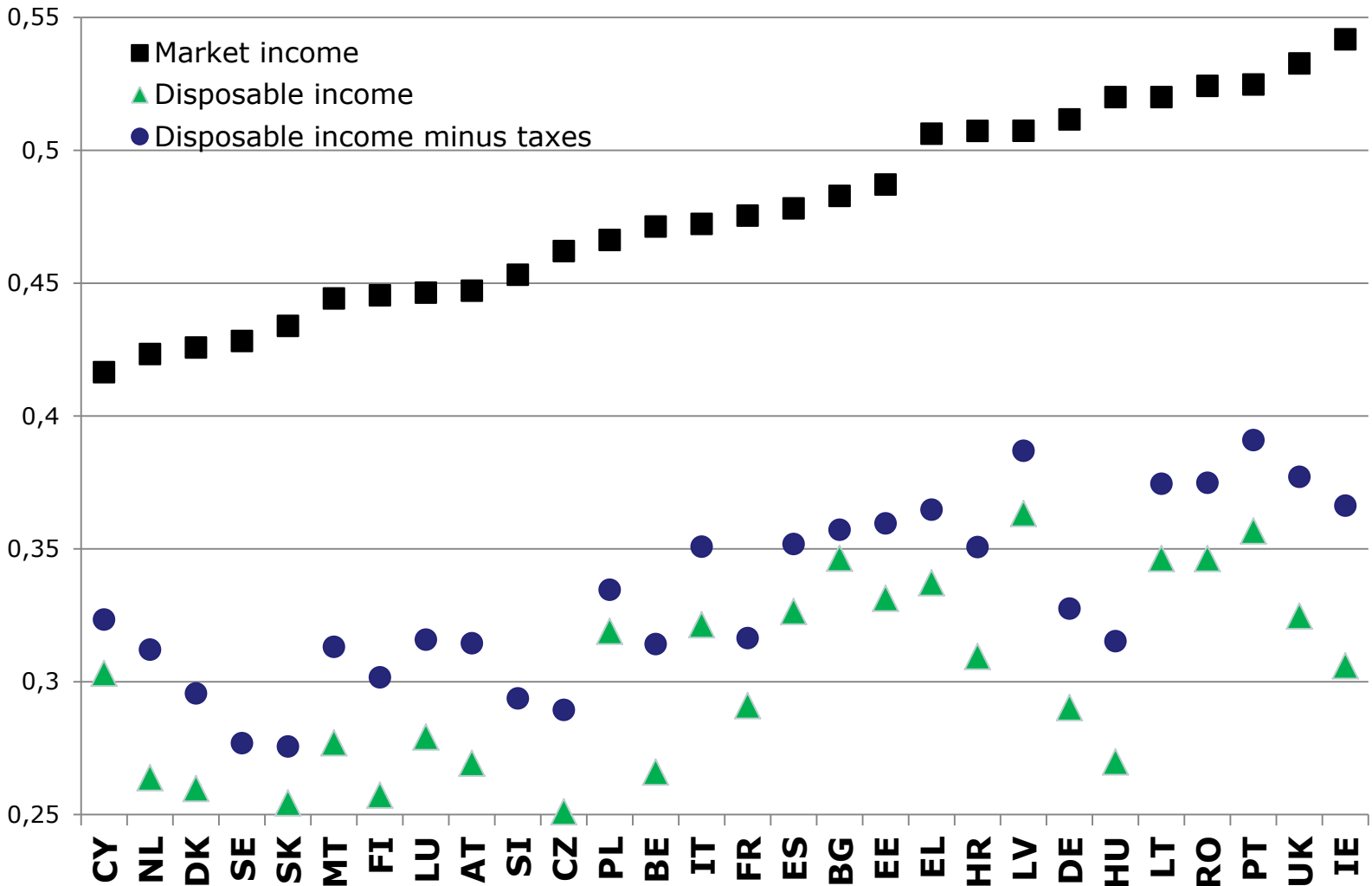
- ❖ Precision in policy simulation and impact on disposable income using real micro data
- ❖ Interaction between tax and social benefits.
- ❖ Measuring and accounting for tax expenditures.
- ❖ Flexible tool to incorporate behavioural effects and macroeconomic feedback.
- ❖ Efficiency + fairness analysis.

Evidence n°1: The equity impact of tax systems in the EU

Decomposition of the Gini index by income sources (2014)



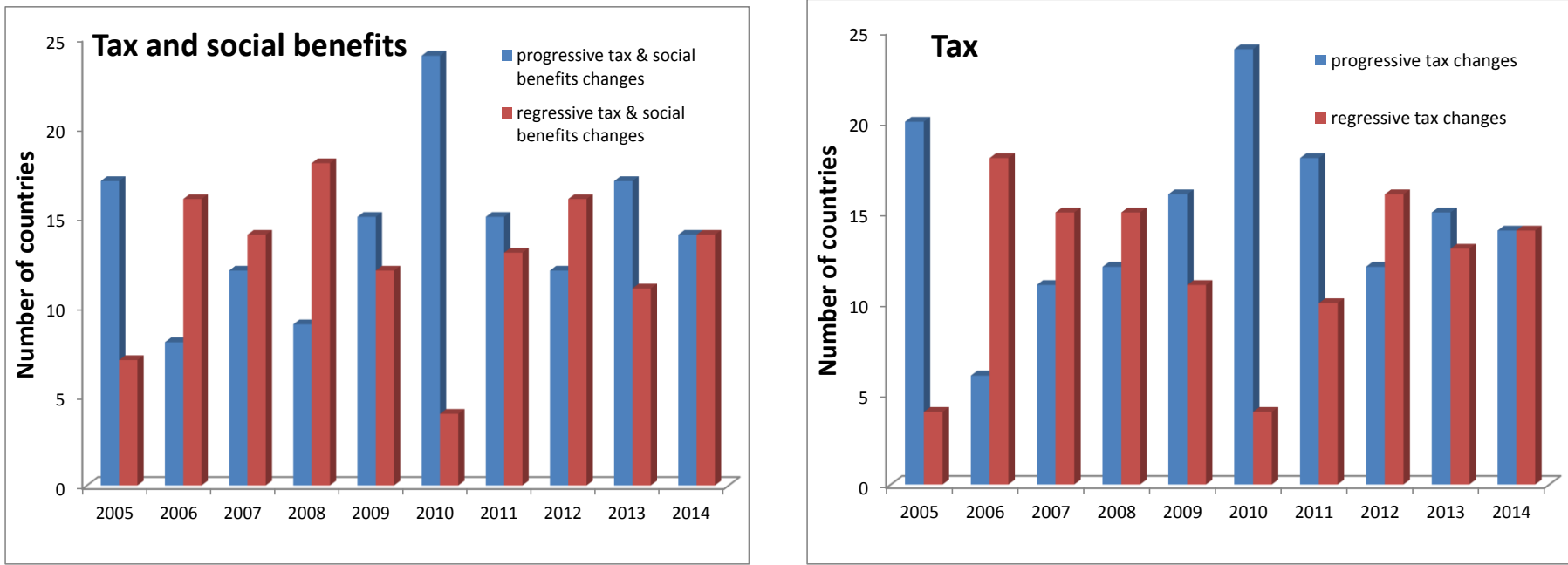
Evidence n°1: The equity impact of tax systems in the EU



Note: averages for 2004-2014, Source: Joint Research Centre, European Commission.

Evidence n°1: The equity impact of tax and social benefits in the EU

Figure 2: Progressive and regressive tax policies in the EU



Note: Progressive and regressive tax policies are defined on the basis of the difference between the annual change in the Gini index calculated on market and net disposable incomes. When this difference is positive (negative) the policy is considered as progressive (regressive).

- Recent evidence suggests (mildly) progressive tax reforms, although results vary depending on the country considered, see EUROMOD reports (2013-2016).

- Need to account for the first and second round effects of tax reforms (Dynamic scoring).
- Need reform-specific analysis to gauge their equity and fiscal impact

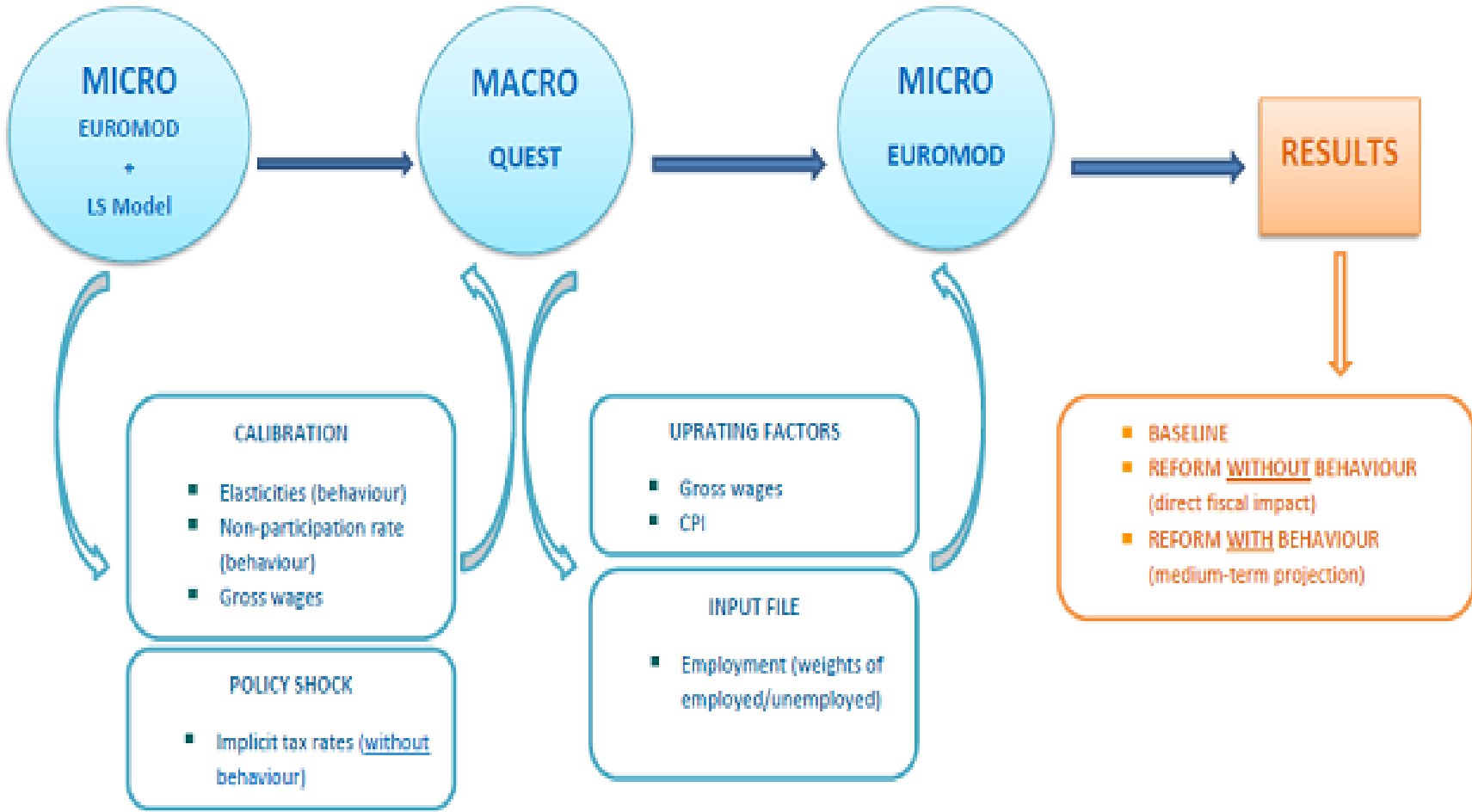
- *Two key questions :*

Which agents are the most directly affected by tax reforms ?
(tax incidence)

To what extent tax reforms are self-financed ?
(macro feedback)

Evidence n°2: Dynamic scoring of tax reforms

Combining EUROMOD with macroeconomic model QUEST

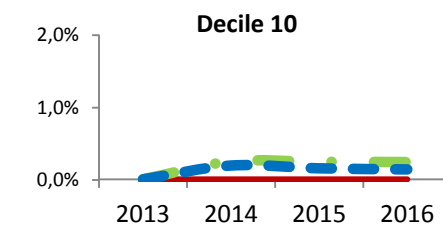
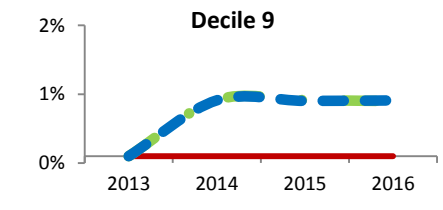
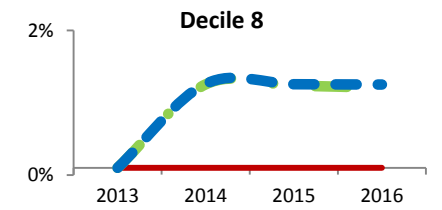
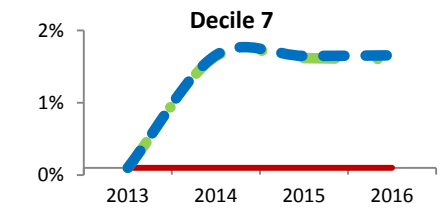
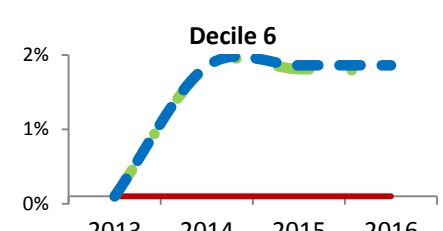
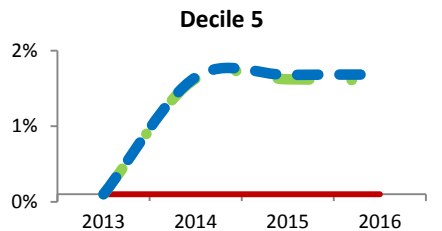
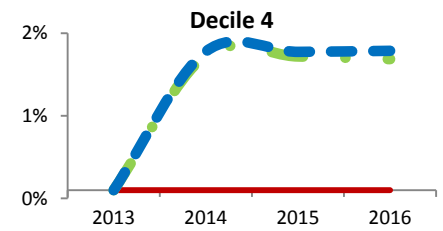
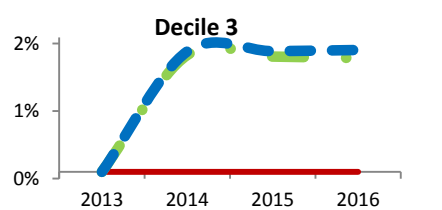
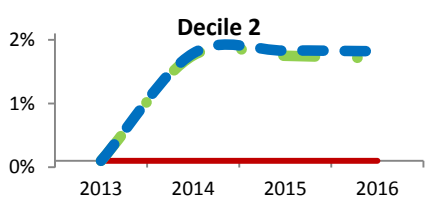
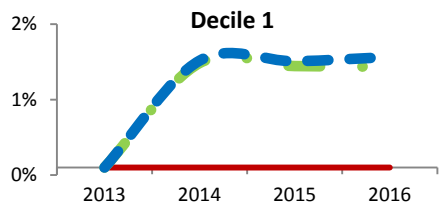


Source: Barrios, Dolls, Maftai, Peichl, Riscado, Varga and Wittneben, (2017)

Real tax reforms in Italy and Poland

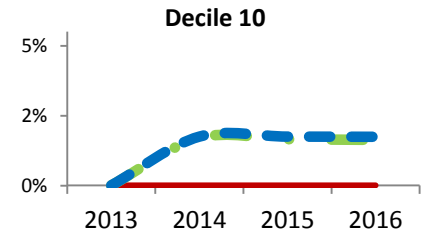
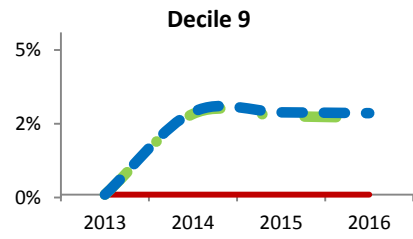
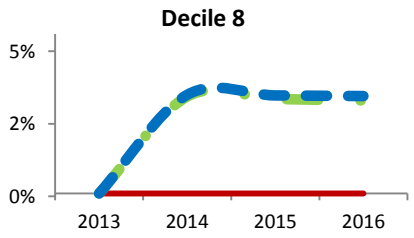
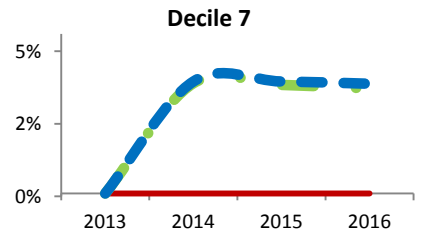
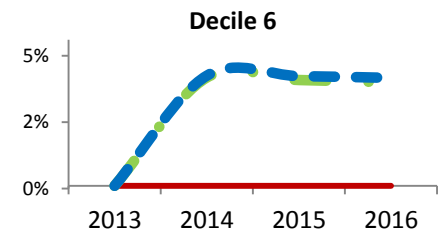
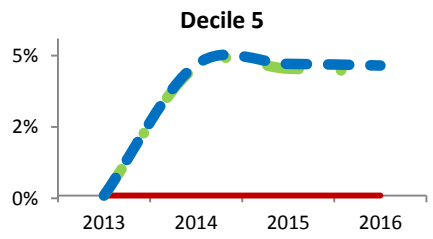
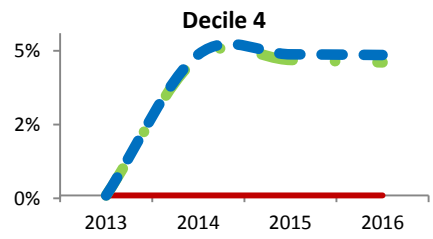
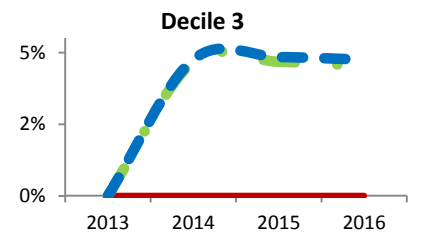
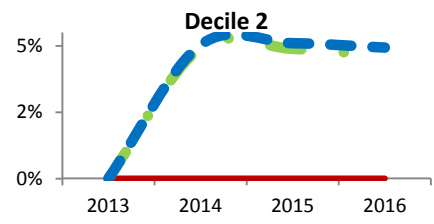
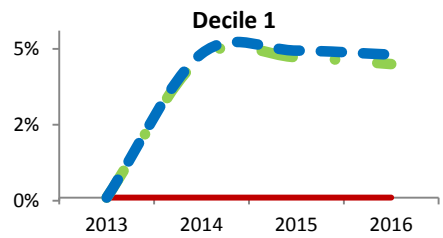
- ❑ The introduction of a refundable in-work tax credit for low income earners (as of 2015) in Italy
 - ✓ the maximum amount (i.e. EUR 80 euro month) is given to employees with a taxable income below EUR 24,000 per year.
 - ✓ Above this threshold, the tax credit is linearly decreasing up to a maximum taxable income of EUR 26,000.
 - ✓ In order to be eligible for the bonus, the employees must earn at least EUR 8,000 per year (below the limit, the employee does not pay income tax).
- ❑ A proposal to increase in the income exempt from the personal income tax from PLN 3,090 to PLN 8,000, discussed in Poland (2016)
 - ✓ The increase in the tax-free amount implies that the amount of the universal tax credit rises from PLN 556 up to PLN 1,440.

Distributional impact of the Italian refundable tax credit



 Tax policy change, no macro feedback  Tax policy change, incl. macro feedback

Distributional impact of the Polish universal tax credit



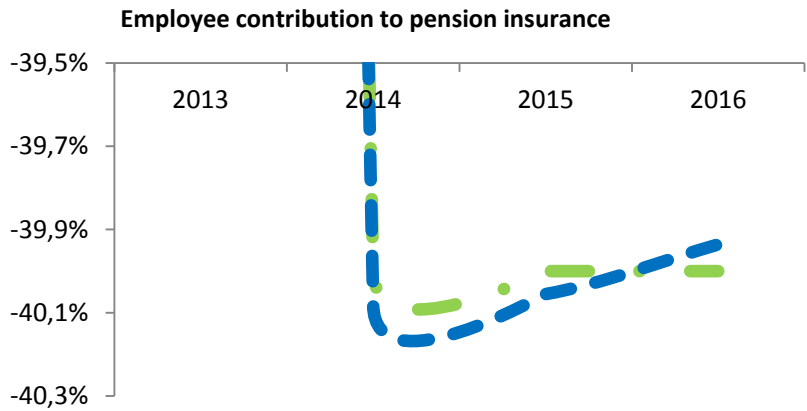
 Tax policy change, no macro feedback  Tax policy change, incl. macro feedback

- Evidence suggests that **most tax reforms have only marginal effects** on incentives & on the economy (see also Gravelle, 2015).
- Dynamic scoring required as reforms can be justified on economic grounds...
- **..but the design of reforms matters in order to understand both their economic & equity impact:** alternative reforms packages can have different equity and fiscal impacts depending on whether second-round effects are accounted for.
- Example of (hypothetical) reform packages: we simulate, alternatively, a 30% cut in the social insurance taxes (health and pensions) paid by employers and employees in Belgium.

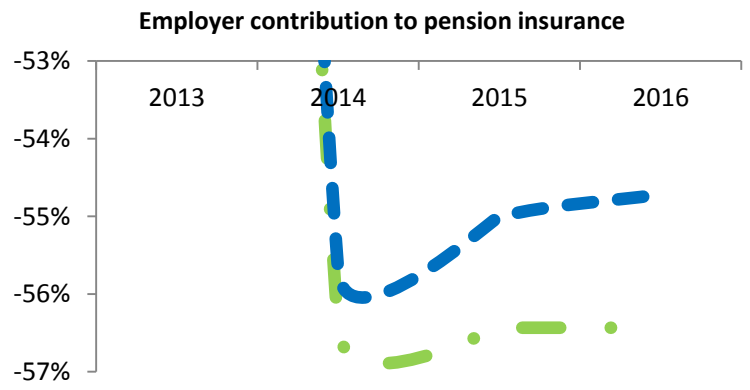
Fiscal impact of a 30% cut in social contributions in Belgium

— • — Tax policy change, no macro feedback
 - - - • - - - Tax policy change, incl. macro feedback

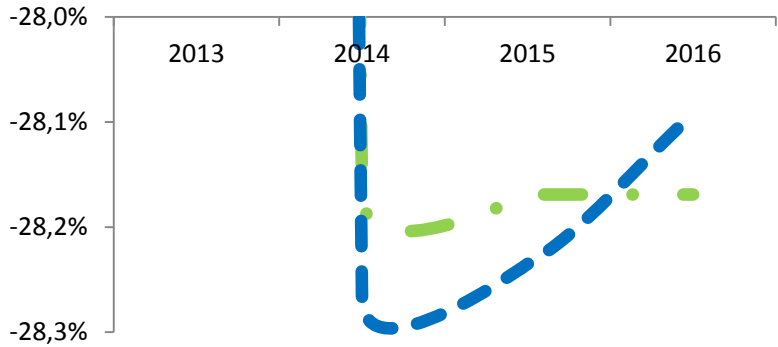
Reduction of social insurance contributions paid by employees



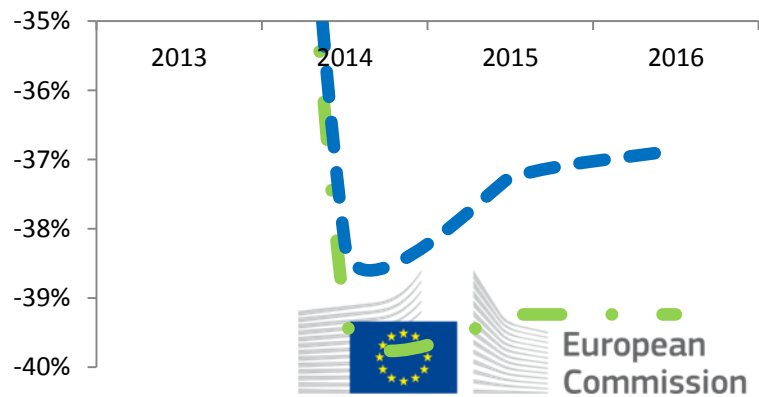
Reduction of social insurance contributions paid by employers



Employee contribution to health insurance



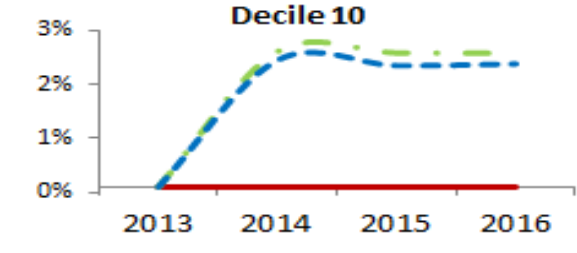
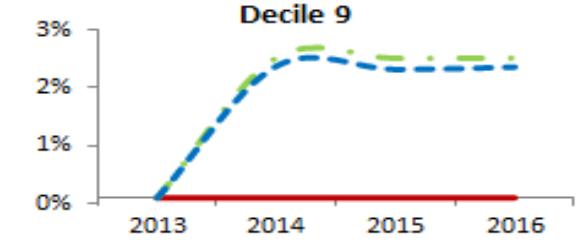
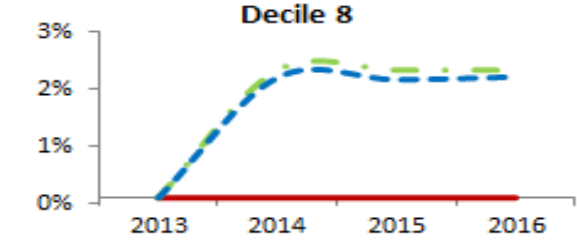
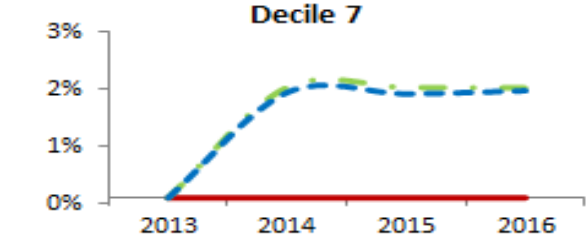
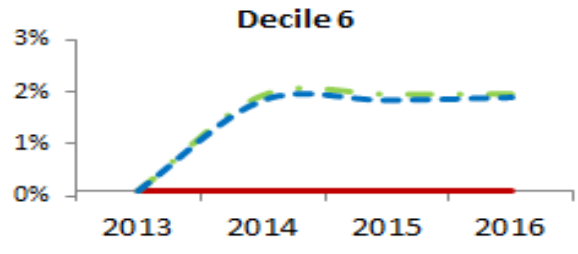
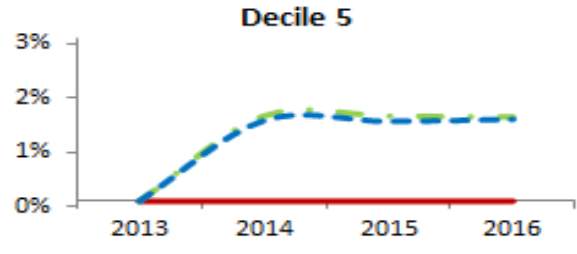
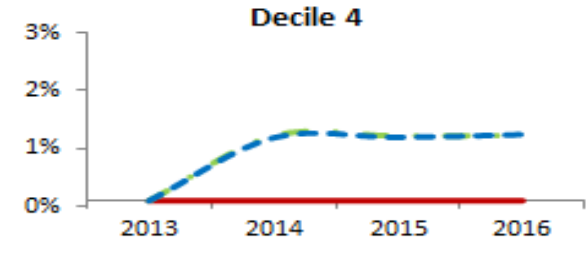
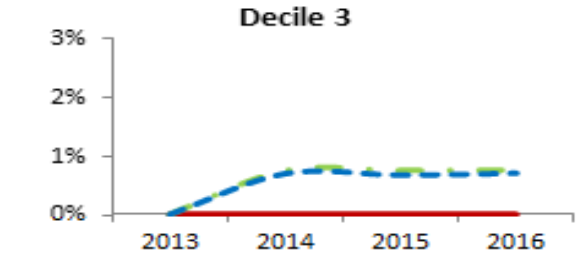
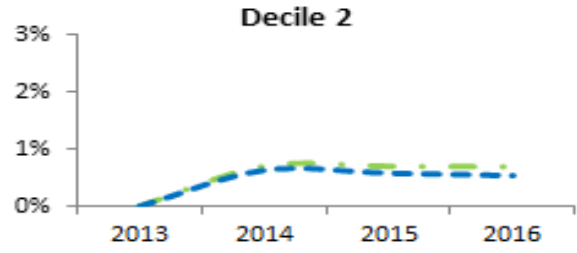
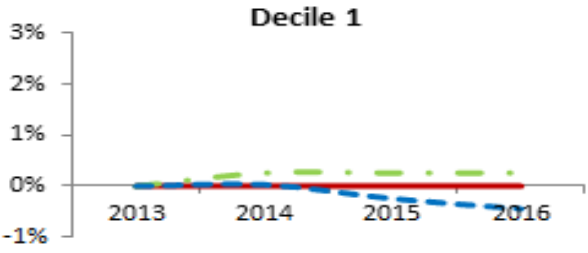
Employer contribution to health insurance



Evidence n°2: Dynamic scoring of tax reforms

Impact of **employee** ssc reform on HH disposable income

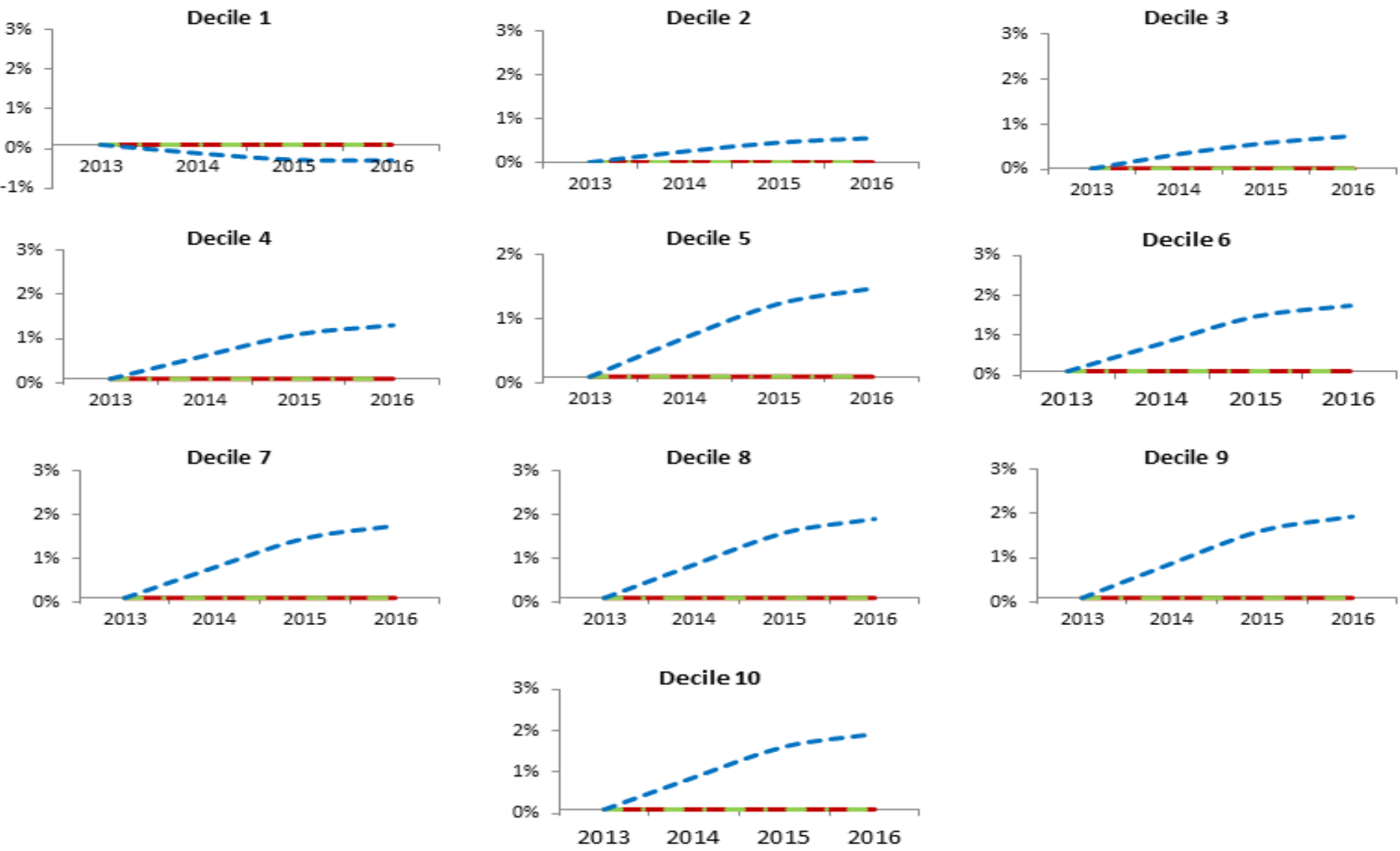
— • — Tax policy change, no macro feedback - - - - - Tax policy change, incl. macro feedback



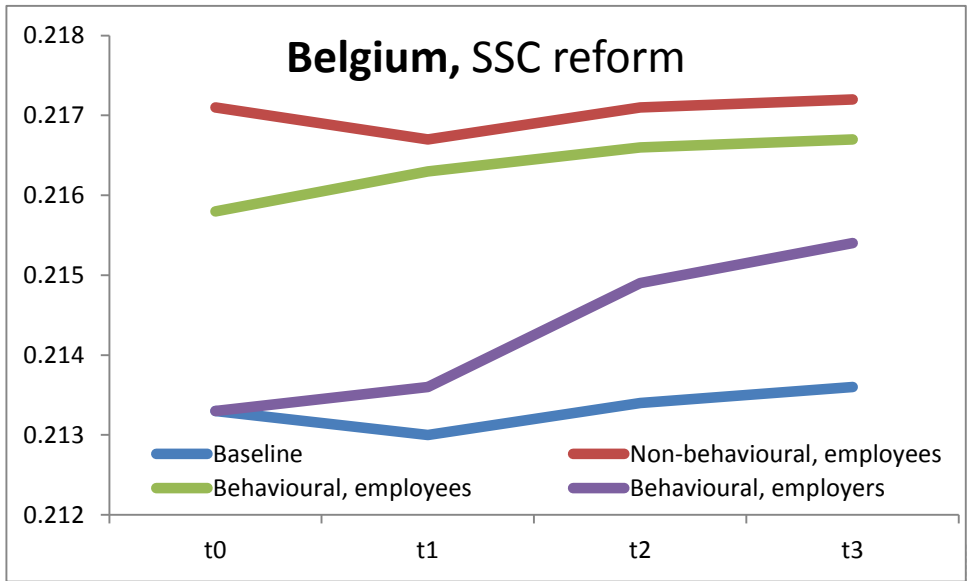
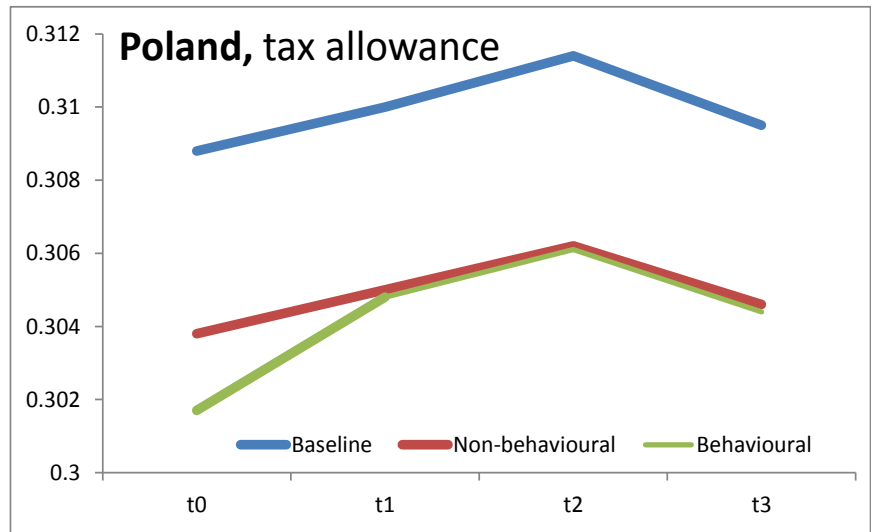
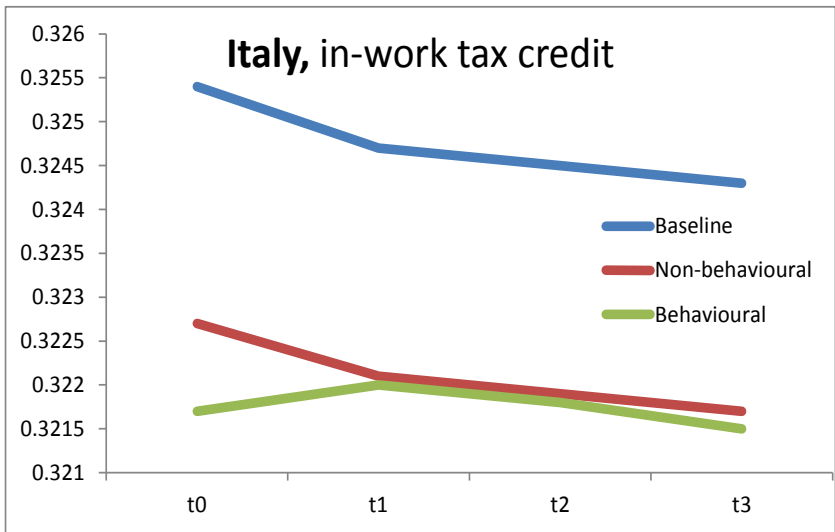
Evidence n°2: Dynamic scoring of tax reforms

Impact of **employer** ssc reform on HH disposable income

—•— Tax policy change, no macro feedback - - - Tax policy change, incl. macro feedback



Evidence n°2: Dynamic scoring of tax reforms: Gini index

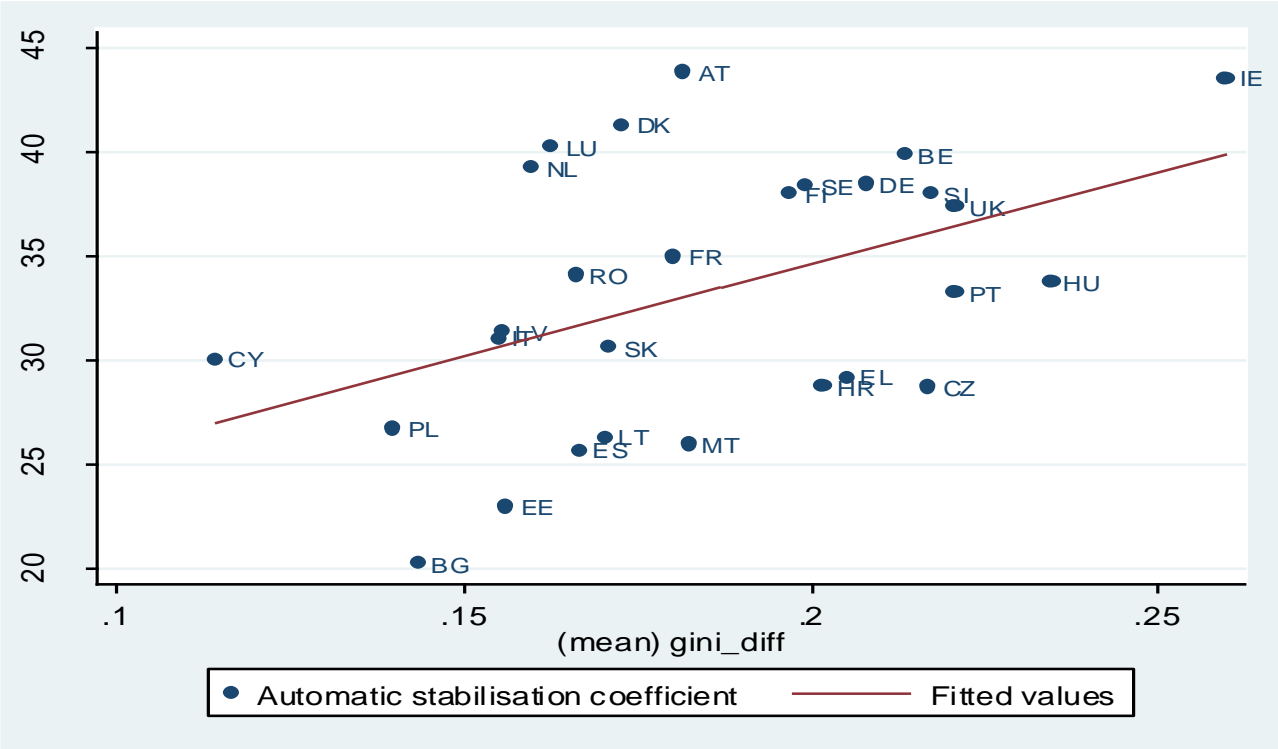


Evidence n°3: Tax and social benefits as automatic stabilisers

- Use of EUROMOD to analyse automatic stabilisation in the EU following Dolls et al. (2012).

$$\tau_i = 1 - \frac{\Delta Y_{h,i}^D}{\Delta Y_{h,i}^M}$$

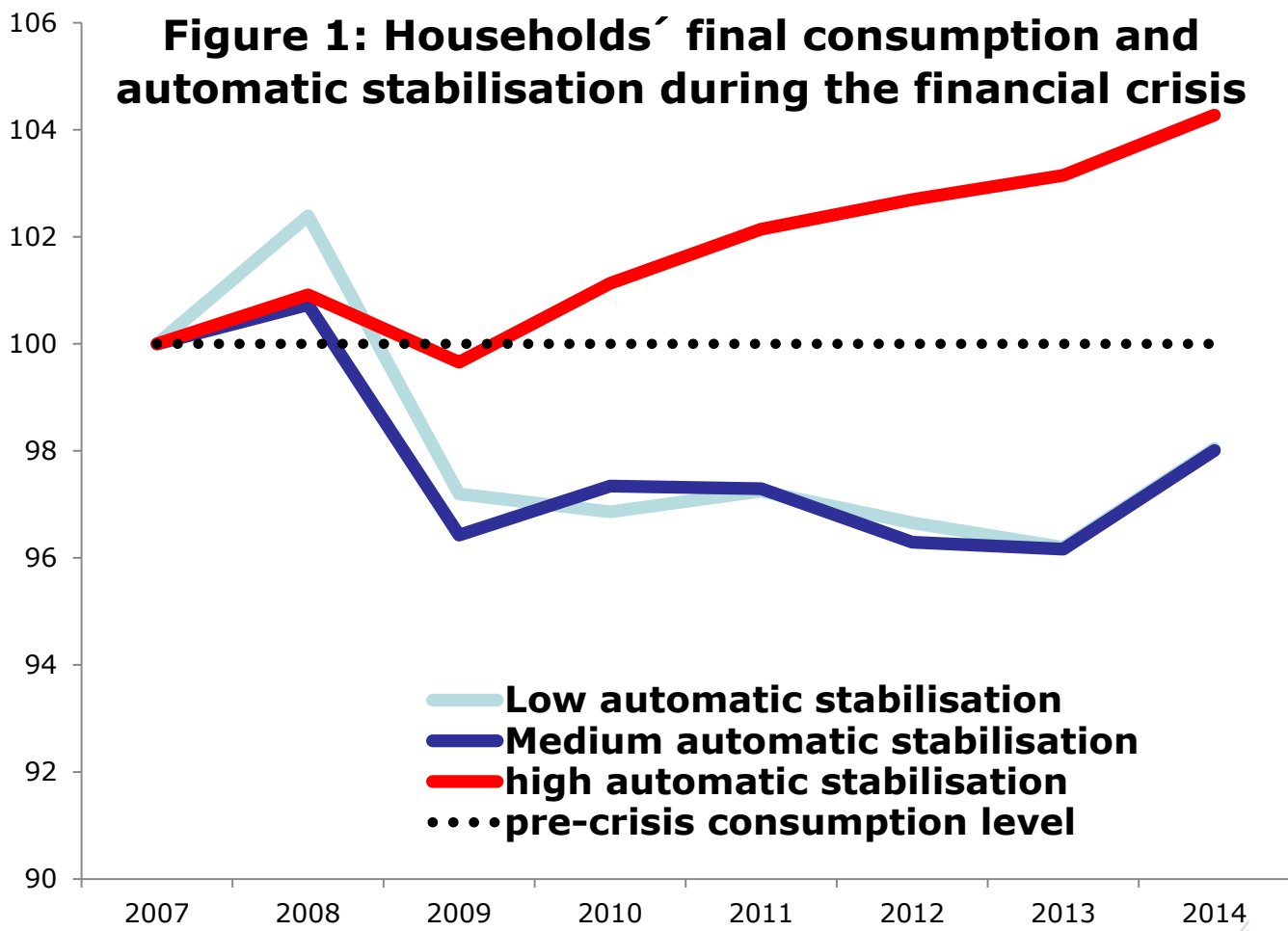
- More redistribution tends to be correlated with higher stabilisation:



Automatic stabilisers vs. Income redistribution, results for 2014
 Y-axis: automatic stabilisation index, X-axis: difference between Gini index calculated on market and net disposable income. Source: JRC, based on the EUROMOD model.

Evidence n°3: Tax and social benefits as automatic stabilisers

- The evidence also suggests that countries with higher automatic stabilisation have experienced lower fall in demand during the crisis.



Source: JRC, based on the EUROMOD model

Summary and way forward

- ❖ EUROMOD-based evidence suggests (mildly) progressive tax reforms in the EU (since 2009).
 - ❖ EUROMOD can be extended to incorporate macro-feedback and incentives effects.
 - ❖ More progressive tax systems tend to be associated with greater automatic stabilisation.
- ✓ **Equity can (also) be good for efficiency**
- ❖ Ongoing extensions of EUROMOD meant to broaden the analysis of equity impact of reforms: VAT & wealth taxation.