

# The distributional effects of recent policy changes in EU countries

Alari Paulus

A European Commission-DG EMPL conference:  
*European Micro-simulation Modelling for Policymaking*  
Brussels, 28<sup>th</sup> May 2015



# Introduction

- Increased interest in the income distribution
  - Stiglitz (2012), Piketty (2014), Atkinson and Bourguignon (2015)
- Need for high-quality and timely micro-data
- Surveys time-consuming and data available with a lag
- Combine with microsimulation techniques
  - Nowcasting the income distribution
  - Estimate policy effects (isolate from other changes and quantify)

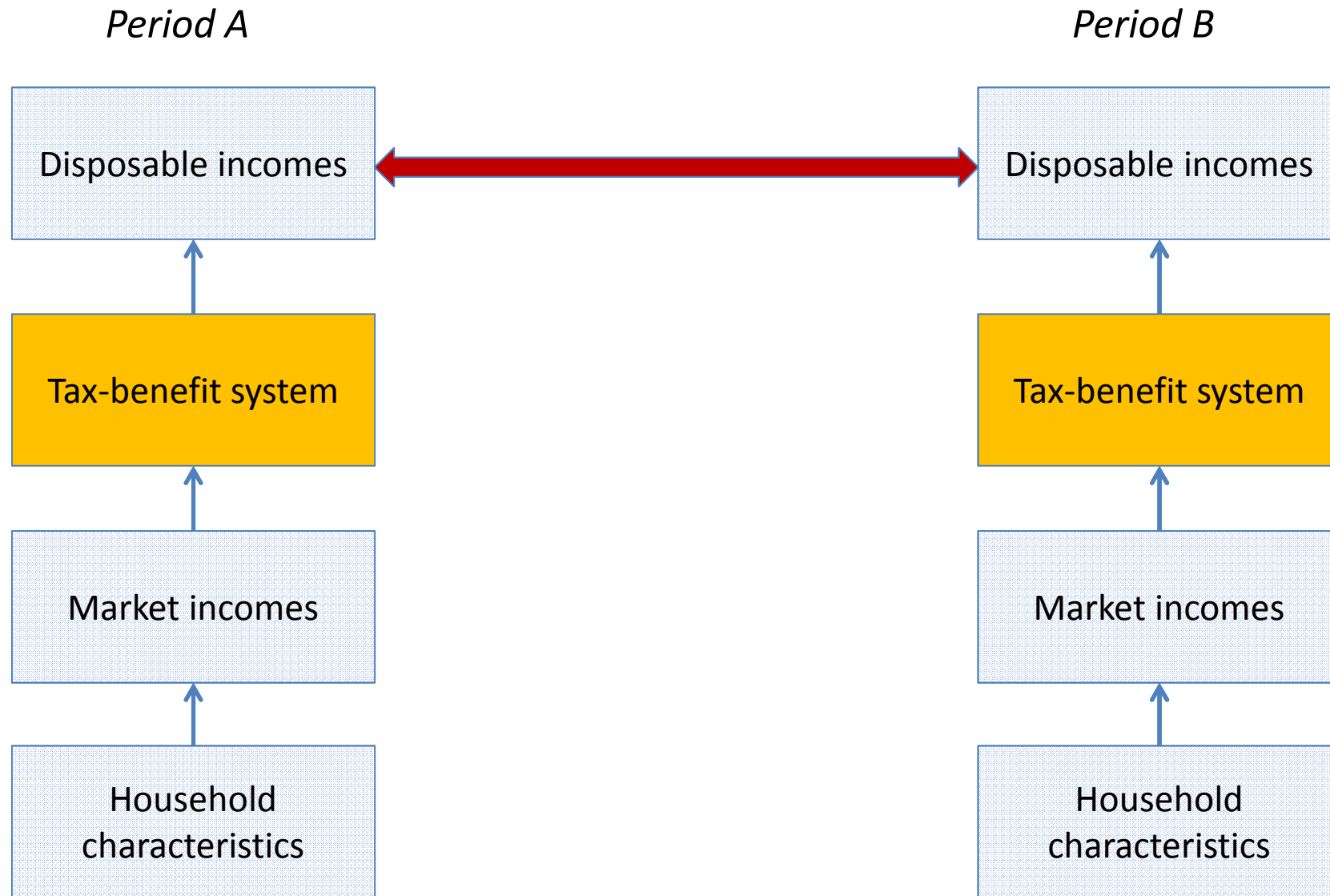


# Research aim

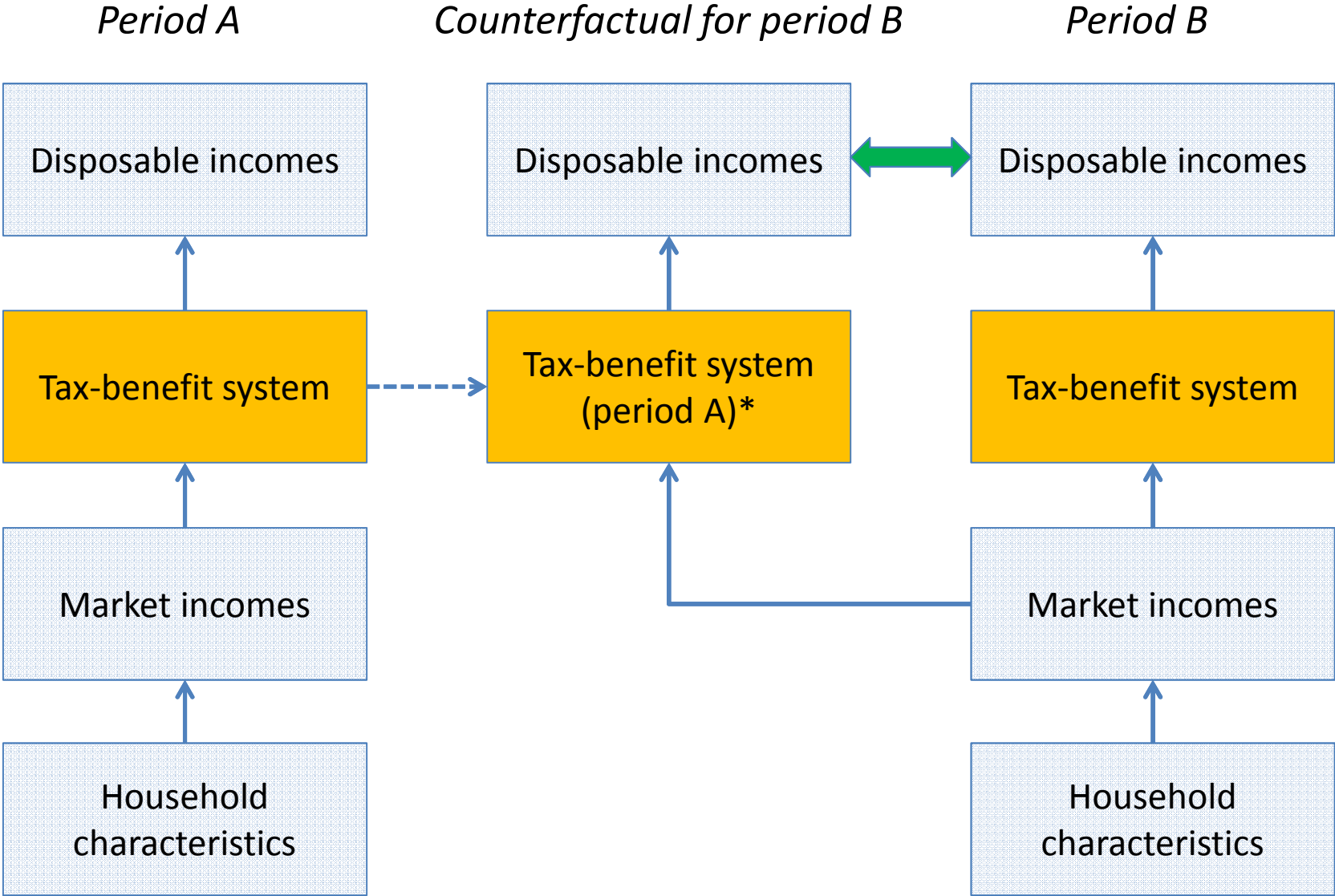
- Estimate the distributional effects of tax-benefit policies
  - since the beginning of the economic crisis (Great Recession)
  - ... up to the most recent policy year (for which rules known in detail), i.e. 2008 policies compared with 2014 policies
  - and separately for the latest year, i.e. 2013 vs 2014 policies
- Underlying analysis published as
  - De Agostini, Paulus and Tasseva (2015) “The effect of tax-benefit changes on the income distribution in 2008-2014”, [Research Note 02/2014](#), Social Situation Monitor, European Commission.
- Updates and extends (our) previous work:
  - Avram et al. (2013), Bargain et al. (2013), De Agostini et al. (2014)



# Changes in the income distribution



# Identifying the policy effect



# Methodology

- Household disposable income broadly depends on household characteristics, their market incomes and the tax-benefit system
- Formal framework for analysing (decomposing) changes in the income distribution over time by Bargain and Callan (2010)
- Time dimension requires adjusting monetary values of tax-benefit policy parameters (benefit amounts, tax thresholds)
  
- We focus on the effect of policies on the income distribution
  - Other factors can be studied once SILC 2015 available
- EUROMOD used to estimate disposable incomes under the counterfactual scenario (and the baseline)



# Benchmark indexation

- How to compare monetary amounts over time? At nominal values?
- We apply price and market income (earnings) based indexation to the tax-benefit parameters when deriving the counterfactual income distribution
  - Parameters kept nominally constant will have an effect too!
- Market Income Index (MII)
  - Retains overall balance between cash benefits and household taxes (fiscally neutral)
  - Neutral towards households relying on market incomes and those dependent on public support (distribution-neutral)
  - Pro-cyclical
- Consumer Price Index (CPI)
  - Maintains the values of benefits and tax thresholds in real terms
  - Not sufficient to keep public support in line with market incomes in the long term



# EUROMOD and scope of analysis

- Tax-benefit policies in 2008-2014 and 2013-2014 (as of 30<sup>th</sup> June)
- First-order effects of changes in
  - cash benefits
  - social insurance contributions
  - income (and property) taxes
  - VAT (standard rate)\*
- 10 EU countries: BG, DE, EE, EL, IT, LV, AT, PL, RO, UK
- Data
  - SILC 2010 (2009 incomes)
  - Family Resources Survey 2009/10 (UK)
- Market incomes uprated from 2009 to 2014 to reflect their average growth (by source)





# The effect of policy changes on poverty (headcount ratio)

| Country | 2014<br>baseline<br>(%) | 2008-2014<br>(percentage points) |          | 2013-2014<br>(percentage points) |          |
|---------|-------------------------|----------------------------------|----------|----------------------------------|----------|
|         |                         | CPI                              | MII      | CPI                              | MII      |
| BG      | 19.5                    | -1.5 ***                         | -0.5 **  | -0.3 ***                         | 0.0      |
| DE      | 12.8                    | 1.2 ***                          | 1.5 ***  | -0.1 ***                         | -0.1 *** |
| EE      | 17.3                    | -1.2 ***                         | -2.6 *** | -1.1 ***                         | 0.0      |
| EL      | 16.5                    | -2.4 ***                         | -2.6 *** | -1.4 ***                         | -1.4 *** |
| IT      | 18.3                    | -0.3 ***                         | -1.0 *** | -0.1                             | -0.1     |
| LV      | 21.6                    | 0.3                              | -3.0 *** | -0.1                             | 0.6 **   |
| AT      | 10.5                    | 0.1                              | 0.0      | -0.1 **                          | -0.1 **  |
| PL      | 18.1                    | 0.2                              | 0.6 ***  | 0.0                              | 0.0      |
| RO      | 21.7                    | -1.0 ***                         | -1.0 *** | -0.2                             | 0.2      |
| UK      | 15.5                    | 0.6 ***                          | -1.2 *** | 0.4 ***                          | 0.5 ***  |

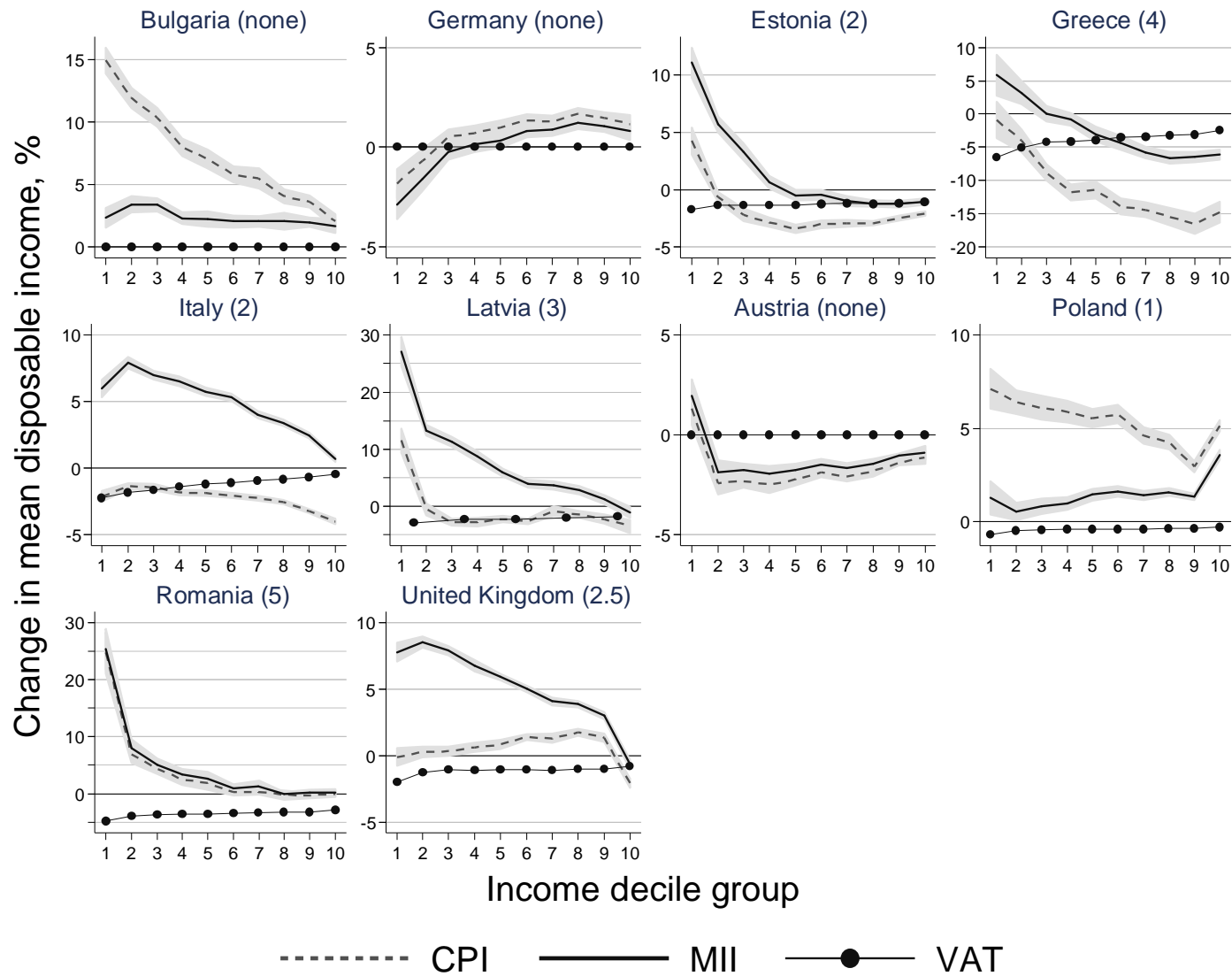
Significance levels indicated as \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . The poverty headcount is measured as the percentage of the population with equivalised household disposable income below 60% of the median.

## The effect of policy changes on mean (equiv.) household disposable income, %

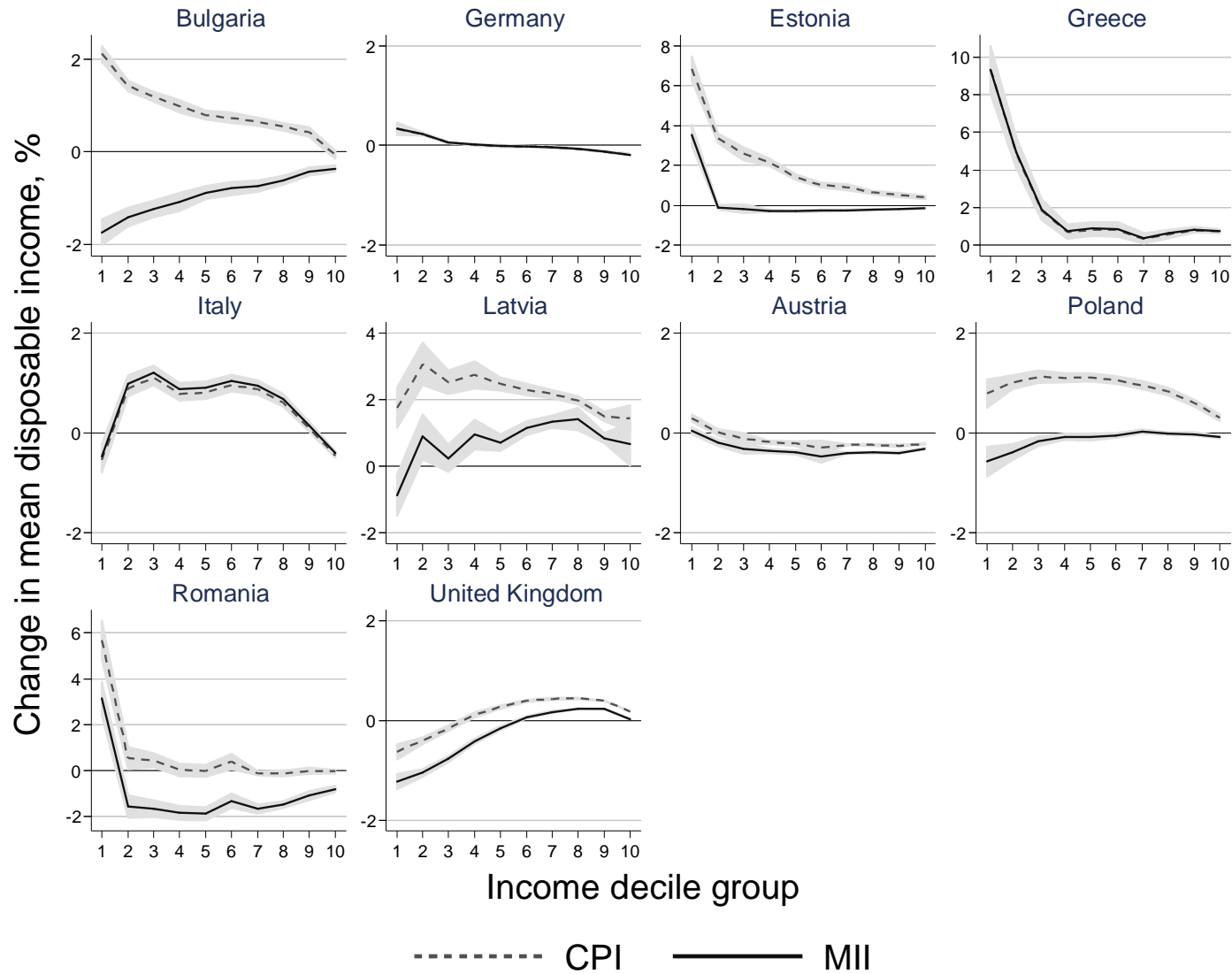
| Country | 2008-2014 |          | 2013-2014 |          |
|---------|-----------|----------|-----------|----------|
|         | CPI       | MII      | CPI       | MII      |
| BG      | 5.2 ***   | 2.1 ***  | 0.6 ***   | -0.7 *** |
| DE      | 1.0 ***   | 0.5 ***  | 0.0 ***   | 0.0 ***  |
| EE      | -2.3 ***  | 0.0      | 1.2 ***   | -0.1 *** |
| EL      | -13.3 *** | -4.3 *** | 1.2 ***   | 1.2 ***  |
| IT      | -2.7 ***  | 3.7 ***  | 0.4 ***   | 0.5 ***  |
| LV      | -2.1 ***  | 3.6 ***  | 2.0 ***   | 0.9 ***  |
| AT      | -1.7 ***  | -1.3 *** | -0.2 ***  | -0.3 *** |
| PL      | 5.0 ***   | 1.8 ***  | 0.8 ***   | -0.1 *** |
| RO      | 1.4 ***   | 1.9 ***  | 0.2 ***   | -1.2 *** |
| UK      | 0.3 ***   | 3.6 ***  | 0.2 ***   | -0.1 *** |

Significance levels indicated as \* p<0.1, \*\* p<0.05, \*\*\* p<0.01.

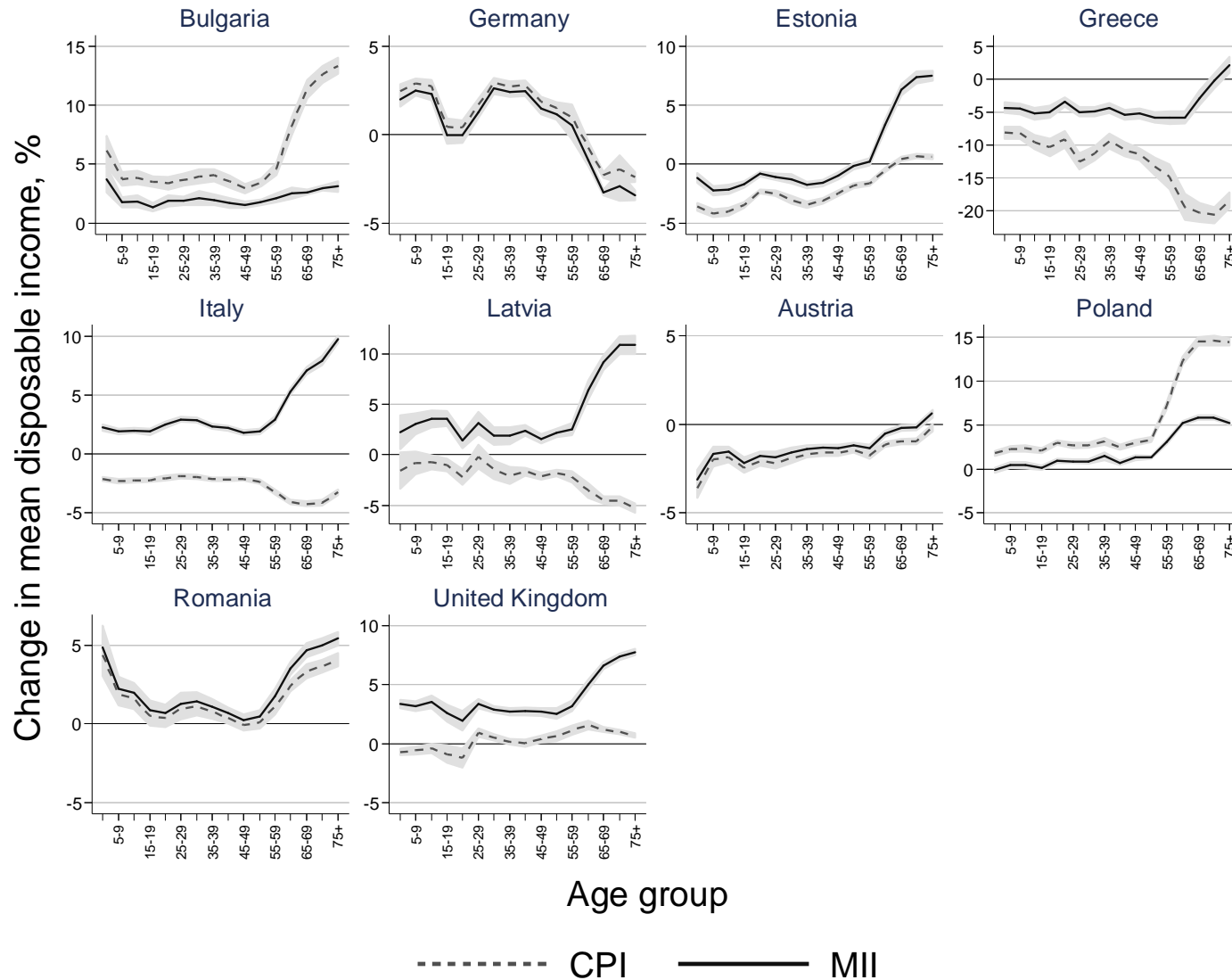
# The effect of policy changes in 2008-14 on household disposable income by deciles, %



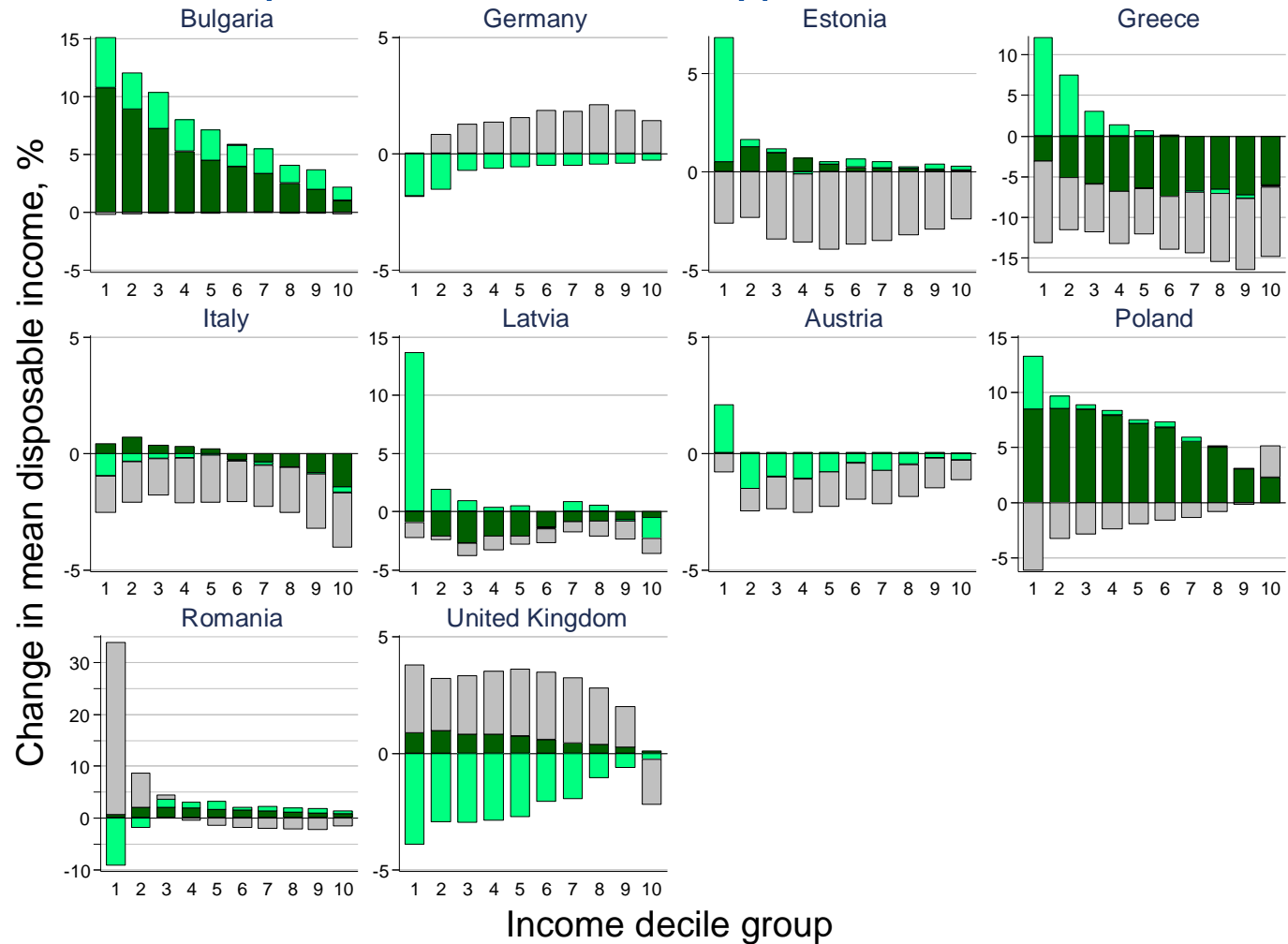
# The effect of policy changes in 2013-14 on household disposable income by deciles, %



# The effect of policy changes in 2008-14 on household disposable income by age, %



# The effect of policy changes in 2008-14 on household disposable income by tax-benefit components (CPI indexation), %



public pensions
  non pension benefits
  taxes and SIC

# Summary

- Direct effects of tax-benefit policies in 2008-14 and 2013-14
- Mostly no adverse distributional effects (despite of a challenging economic environment)
- Though policies reduced incomes in some countries
- Some instances of regressive changes in particular policy instruments
- Comprehensive regular indexation needed to avoid fiscal drag and benefit erosion in the medium/long term
- Caveats: other measures and secondary effects



# Thank you!

[apaulus@essex.ac.uk](mailto:apaulus@essex.ac.uk)

<http://www.euromod.ac.uk>





## Movement in prices (CPI) and market incomes (MII)

|         | 2008-14 |       | 2013-14 |       |
|---------|---------|-------|---------|-------|
| Country | MII     | CPI   | MII     | CPI   |
| BG      | 1.276   | 1.104 | 1.040   | 0.984 |
| DE      | 1.098   | 1.086 | 1.008   | 1.008 |
| EE      | 1.081   | 1.172 | 1.059   | 1.008 |
| EL      | 0.825   | 1.081 | 0.985   | 0.986 |
| IT      | 0.951   | 1.105 | 1.001   | 1.003 |
| LV      | 0.859   | 1.104 | 1.056   | 1.015 |
| AT      | 1.114   | 1.124 | 1.018   | 1.015 |
| PL      | 1.284   | 1.160 | 1.035   | 1.003 |
| RO      | 1.264   | 1.282 | 1.056   | 1.014 |
| UK      | 1.052   | 1.174 | 1.022   | 1.013 |

# The effect of policy changes on poverty gap (FGT1)

| Country | 2014<br>baseline<br>(%) | 2008-2014<br>(percentage points) |           | 2013-2014<br>(percentage points) |           |
|---------|-------------------------|----------------------------------|-----------|----------------------------------|-----------|
|         |                         | CPI                              | MII       | CPI                              | MII       |
| BG      | 5.63                    | -0.66 ***                        | -0.04     | -0.14 ***                        | 0.12 ***  |
| DE      | 2.42                    | 0.47 ***                         | 0.51 ***  | -0.04 ***                        | -0.04 *** |
| EE      | 4.14                    | -0.60 ***                        | -1.08 *** | -0.46 ***                        | -0.26 *** |
| EL      | 4.83                    | -1.00 ***                        | -0.65 *** | -0.66 ***                        | -0.66 *** |
| IT      | 6.85                    | -0.01                            | -0.11 *** | 0.07 ***                         | 0.07 ***  |
| LV      | 6.06                    | -0.73 ***                        | -1.72 *** | 0.03                             | 0.17 ***  |
| AT      | 1.65                    | -0.18 ***                        | -0.21 *** | -0.06 ***                        | -0.05 *** |
| PL      | 4.93                    | -0.01                            | 0.10 ***  | 0.04 ***                         | 0.06 ***  |
| RO      | 7.08                    | -1.10 ***                        | -1.13 *** | -0.30 ***                        | -0.12 *** |
| UK      | 4.46                    | 0.28 ***                         | -0.11 *** | 0.09 ***                         | 0.12 ***  |

Significance levels indicated as \* p<0.1, \*\* p<0.05, \*\*\* p<0.01. The poverty line is 60% of the median equivalised household disposable income.

# The effect of policy changes on poverty severity (FGT2)

| Country | 2014<br>baseline<br>(%) | 2008-2014<br>(percentage points) |           | 2013-2014<br>(percentage points) |           |
|---------|-------------------------|----------------------------------|-----------|----------------------------------|-----------|
|         |                         | CPI                              | MII       | CPI                              | MII       |
| BG      | 2.28                    | -0.37 ***                        | 0.01      | -0.09 ***                        | 0.06 ***  |
| DE      | 0.82                    | 0.21 ***                         | 0.22 ***  | -0.01                            | -0.01     |
| EE      | 1.53                    | -0.40 ***                        | -0.61 *** | -0.28 ***                        | -0.20 *** |
| EL      | 2.44                    | -0.45 ***                        | -0.18 **  | -0.41 ***                        | -0.41 *** |
| IT      | 4.28                    | 0.05 ***                         | 0.03 **   | 0.08 ***                         | 0.08 ***  |
| LV      | 2.60                    | -0.68 ***                        | -1.19 *** | 0.05 ***                         | 0.13 ***  |
| AT      | 0.40                    | -0.12 ***                        | -0.13 *** | -0.02 ***                        | -0.02 *** |
| PL      | 2.21                    | 0.00                             | 0.03      | 0.02 **                          | 0.02 *    |
| RO      | 3.21                    | -0.96 ***                        | -0.98 *** | -0.27 ***                        | -0.17 *** |
| UK      | 2.40                    | 0.20 ***                         | 0.07 ***  | 0.04 ***                         | 0.05 ***  |

Significance levels indicated as \* p<0.1, \*\* p<0.05, \*\*\* p<0.01. The poverty line is 60% of the median equivalised household disposable income.

# The effect of policy changes on Gini

| Country | 2014<br>baseline<br>(%) | 2008-2014<br>(percentage points) |           | 2013-2014<br>(percentage points) |           |
|---------|-------------------------|----------------------------------|-----------|----------------------------------|-----------|
|         |                         | CPI                              | MII       | CPI                              | MII       |
| BG      | 33.0                    | -1.33 ***                        | -0.13 *** | -0.26 ***                        | 0.19 ***  |
| DE      | 26.9                    | 0.46 ***                         | 0.56 ***  | -0.07 ***                        | -0.07 *** |
| EE      | 31.0                    | -0.20 ***                        | -0.95 *** | -0.58 ***                        | -0.13 *** |
| EL      | 30.7                    | -1.02 ***                        | -1.29 *** | -0.52 ***                        | -0.52 *** |
| IT      | 31.5                    | -0.36 ***                        | -1.05 *** | -0.20 ***                        | -0.20 *** |
| LV      | 35.2                    | -0.46 ***                        | -2.52 *** | -0.21 ***                        | 0.08      |
| AT      | 25.5                    | 0.10 ***                         | 0.04      | -0.05 ***                        | -0.02 *** |
| PL      | 31.2                    | -0.13 ***                        | 0.41 ***  | -0.13 ***                        | 0.04 ***  |
| RO      | 32.9                    | -1.04 ***                        | -1.12 *** | -0.22 ***                        | 0.04      |
| UK      | 31.7                    | -0.18 ***                        | -1.33 *** | 0.09 ***                         | 0.18 ***  |

Significance levels indicated as \* p<0.1, \*\* p<0.05, \*\*\* p<0.01.