



## MOTIVATION

The Council for Budget Responsibility (CBR) is an independent body set up to monitor and evaluate the fiscal performance of the Slovak Republic. Through its expertise and the use of analytical tools, the CBR is holding a mirror up to the government and improves public awareness in the area of public finances.

To provide an accurate-enough assessment of budgetary and distributional effects of tax and transfer system reforms, a simulation tool that can be easily incorporated into other models has been developed.

For a microsimulation model to provide trustworthy results, the fundamental prerequisites are high level of precision in the simulated policies together with high degree of representativeness of the underlying micro-data.

## Improving the Validity of Microsimulation Results

Z. Siebertova, N. Svarda, J. Valachyova

## RE-WEIGHTING THE INPUT DATA

The original weights supplied with the survey SILC Data do not adequately represent key analytical groups required for the policy analysis.

The new weights allow for more detailed control of small children age categories (important for family benefits simulations) and the earned income distribution (fundamental when simulating payroll taxes).

### CALIBRATION CATEGORIES

- Age cohorts (0, 1-3, 4-16, 17-25, 26-45, 46-retirement age, over retirement age)
- Categories over 16 years considered separately for gender (male, female)
- Labour market status (employees, unemployed, self-employed)
- Household size (members 1, 2, 3, 4, 5+)
- Gross income from employment distribution (deciles 1-2, 3-5, 6-8 and 9-10)

## SIMTASK

SIMTASK (Simulation Model of Taxes and transfers in Slovakia) is a simulation tool that can be easily incorporated as a part of more complex models used within the CBR to assess the static effects as well as the long-run consequences of tax and benefit reform strategies.

SIMTASK runs on SK-SILC data. The simulated policies include personal income tax, all health and social insurance contributions paid by employers, employees and self-employed. Simulated transfers include family related programs (child birth grant, child benefit and parental allowance). Means-tested material needs benefit and contributory unemployment insurance benefit are simulated partially under simplifying assumptions.

SIMTASK is inspired by the Slovak component of EUROMOD. In addition, it includes a substantial extension of simulation of certain transfers (material needs, maternity and unemployment benefit).

### LEGEND

The figure displays ratios of (non)simulated results to the official statistics in 2011. Aggregate amounts of taxes and transfers are validated. Perfect match is achieved if the ratio equals to 1.

- SIMTASK using original weights
- SIMTASK using calibrated weights

## RESULTS

The validity of simulated output is interpreted in terms of differences between simulations using original and new weighted survey data on one side and the official statistics on the other side.

Weights calibration helps SIMTASK to become a more convincing tool to simulate and evaluate the impact of selected tax and transfer system policies. However, the re-weighting is not a panacea and the focus of further analysis that user is interested in is of relevance.

The weight calibration considerably improves the fit of the model with respect to important income tax and social security contributions categories.

