

# The AMMATSBC project: results and experiences

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# The AMMATSBC project

Application of **M**icrosimulation **M**odels in the **A**nalysis of **T**axes and **S**ocial **B**enefits in Croatia (AMMATSBC)

September 2015 – December 2018 (= 40 months)  
Financed by the Croatian Science Foundation

In this presentation:

Attainments  
Experiences  
What next?

## Goals of the project:

- Develop **miCROmod** – a microsimulation model of Croatian taxes and benefits
- Use miCROmod and EUROMOD in the **analyses** of tax-benefit reforms
- **Present** the advantages of microsimulation to Croatian researchers and policy makers

## The team:

Ivica Urban, Slavko Bezeredi, Martina Pezer, Chrysa Leventi, Holly Sutherland,  
+ **Ivica Rubil, Marko Ledić**

$$\text{miCROmod} = \text{miCROmodA} + \text{miCROmodB}$$

miCROmodA

Arithmetic tax-benefit microsimulation model; a EUROMOD “spin-off” model

miCROmodB

Behavioural tax-benefit microsimulation model; discrete choice labour supply model

## Why miCROmodA?

...when we already have the EUROMOD Croatian module (EMCM)

(1) It uses the **national** SILC data, which is more detailed than the **UDB** SILC

### ADVANTAGES:

Employment income: taxable & non-taxable

Self-employment income: 6 categories (taxable & non-taxable / non-agricultural, agricultural, contractual)

### But...

Thanks to the disaggregation of benefits into 4 categories by EUROSTAT – the advantage of national data (regarding benefits) almost disappears;

Data on the **place of living** could not be obtained from the Croatian Bureau of Statistics (due to confidentiality)

## Why miCROmodA?

...when we already have the EUROMOD Croatian module (EMCM)

(2) It simulates 5 types of local social benefits in 4 major cities (Zagreb, Split, Rijeka and Osijek)

### ADVANTAGES:

For the first time we can see the scope and impact of these policies on the living standards; they have a significant role, at least in richer cities

### But...

Very tedious job of programming – almost like having additional 4 countries;  
Who could deal with all local units in Croatia?! (127 cities & 428 municipalities)

Majority of local support comes from non-cash benefits (kindergarten and city transport subsidies)

→ to have a consistent analysis, we should also program such benefits at the central government level

## **The future of miCROmodA...**

With somewhat more detailed data on employment and self-employment income from EUROSTAT...

...no need for a separate model

The necessity to synchronise with the EMCM: double job of data preparation and programming

However, building miCROmodA was very useful!  
(flexibility, experimenting...)

## miCROmodB

Behavioural supplement, which simulates the impact of tax-benefit changes on labour supply and gross earnings;  
“Discrete choice labour supply model”, based on the works of Dagsvik, Aaberge, Colombino, and others.

### ADVANTAGES:

Obtaining the results, which are impossible to obtain by a static microsimulation model, or by other methods

Analysis of tax-benefit instruments which are likely or intended to induce behavioural reactions (e.g., particularly in-work benefits)

During the model building process: improved cognition of simple facts

### But...

Huge investment of time and effort; requires a devoted team, and some quality advice

Familiarity with advanced methods is required to create results and draw conclusions



## Research papers

### ○ Child benefits

Urban, I. and Pezer, M. (2019). Compensation for households with children in Croatia, Slovenia and Austria. *Social Indicators Research*, 1-33.

Urban, I., Pezer, M. (2018). Microsimulation of Child Benefits: A Review of Studies. *International Journal of Microsimulation*, 11(3), 134–169.

### ○ Local social benefits

Pezer, M., Bezeredi, S., Leventi, C. (2018). The distributional impact of local social benefits of Zagreb, Split, Rijeka and Osijek. *Proceedings of 7th International Scientific Symposium “Economy of eastern Croatia – vision and growth”*, 582-590.

Pezer, M., Urban, I., Leventi, C. (2018). Local social benefits in Croatia: how much do they address the risks and needs of families with children? *In review*.

### ○ Direct taxes

Urban, I., Čok, M., Verbič, M. (2019). The burden of labour taxation in Croatia, Slovenia and Slovakia in the period 2011-2017. *Economic Research-Ekonomska Istraživanja*, 32(1), 1430-1456.

### ○ In-work benefits

Bezeredi, S. Ledić, M., Rubil, I., Urban, I. (2018). Making work pay in Croatia: an ex-ante evaluation of two in-work benefits using miCROmod. *International Journal of Microsimulation*, forthcoming.

### ○ Other

Bezeredi, S., Urban, I. (2016). Predicting gross wages of non-employed persons in Croatia. *Financial Theory and Practice*, 40(1), pp.1–61.

Urban, I. (2019). Measuring redistributive effects of taxes and benefits: beyond the proportionality standard. *FinanzArchiv/Public Finance Analysis*, 1-31.

## Policy analysis

Vienna 2018: “Using miCROmod for policy making in Croatia”

Goal: to demonstrate to policy makers that  
microsimulation models can be a useful tool for *ex-ante* policy analysis

### ADVANTAGES:

Being close to the centres of decision-making: a lot of information

Forced to pose detailed questions about tax-benefit instruments: incentives to correct and improve the model (and data)

### But:

Government institutions may require relatively precise information (e.g., how many new beneficiaries):

- Non-representative and improperly adjusted (obsolete) data
- Difficult-to-predict behavioural responses

## What next?

ITBIDEE: “Impact of taxes and benefits on income distribution and economic efficiency”  
(submitted to research competition by the Croatian Science Foundation)

- Update miCROmod with newest data and tax-benefit parameters
- Obtain a more credible income distribution by merging survey data and administrative tax data
- Upgrade of miCROmod with the module for simulation of indirect taxes
- Analyses:
  - Impacts of the reform of direct and indirect taxes on efficiency and income distribution
  - Optimal taxation of top incomes
  - Estimation of social preferences for redistribution using the inverse optimum approach
  - Income inequality decompositions for EU countries

More comprehensive and detailed macro-/micro-validations

“Monthly” model – model based on one month as a unit period – instead of one year

P.S. Government ministries should publish their yearly reports earlier (e.g., September is too late!)