

Towards a more credible simulation of parental benefits: survey re-weighting and top income replacement

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Issues

- 2022: Reform of parental benefits in Croatia
 - to conform with EU Directive on work-life balance
- Central State Office of Demography and Youth
 - Institute of Public Finance: ex ante analysis of budgetary impact
- Parental benefits simulated in EUROMOD
- Data problems:
 - number of households with small children
 - top employment incomes
- Data improvements using the newly conceived statistical approach

This presentation

Part 1

- General aims of parental support
- EU Directive on work-life balance

Part 2

- Reform of parental benefits
- Actual system of parental benefits in Croatia
- Microsimulation of parental benefits

Part 3

- 'Sampling' and 'non-sampling error'
- The Blanchet-Flores-Morgan (BFM) correction approach

Part 4

- Results
- Concluding remarks

General aims of parental support

- enable parents to provide adequate care for their children from an early age
- achieve a balance between work and family life
- prevent standard and quality of life from falling due to parental leave and increased expenses caused by parenthood
- encourage potential parents to make easier decisions about starting and expanding their families

EU Directive on work-life balance

EU Directive 2019/1158 on **work-life balance** for parents and carers:

“This EU Directive sets out minimum requirements for parental leave, paternity leave and carers’ leave. All men and women who have an employment contract are entitled to take parental leave, paternity leave, or carers’ leave and to arrange flexible working schemes in accordance to the Directive.

*The Directive also entitles second parents to take leave, thus it intends to create an incentive for **fathers to take parental or paternity leave** and to take on caring responsibilities. In this way, the Directive shall contribute to **a more equal sharing of caring responsibilities** between men and women.”*

Reform of parental benefits

Central State Office of Demography and Youth – government body in charge of (re)designing parental benefits

Institute of Public Finance engaged in January 2022 to provide a factual and counterfactual analysis of parental benefits (2016-2021, 2022-2023)

The aim of the **reform**: conform with the EU Directive

- (1) Introduction of the new benefit: **Paternity leave benefit**
- (2) Change in the (existing) Parental leave benefit: **increase** in the ceiling amount
- (3) Several other minor changes

Actual system of parental benefits in Croatia

4 “core” benefits: represent >80% of total outlay
Simulated in EUROMOD

<i>Name</i>	<i>Economic status</i>	<i>User</i>
Maternity leave benefit	employed & self-employed	mother (or father, in the 2 nd part)
Parental leave benefit	employed & self-employed	mother or father
Maternity and parental allowance	non-employed, unemployed, occasionally employed, employed in agriculture	mother or father
Lump-sum grant for newborn children	all	family

Other benefits: (a) for adoptive parents, (b) for parents of children with health problems and disability, (c) other minor benefits

Maternity leave benefit and Parental leave benefit

Eligibility:

For employed & self-employed with an adequate history of SIC payments

Duration:

Maternity leave benefit	Parental leave benefit
BD-30 to BD+180	BD+181 to BD+420 (≈m7-m14) (extension for twins/multiples or the 3 rd + child)

Benefit amount

Maternity leave benefit	Parental leave benefit
Benefit amount base = SIC base <i>minus</i> SIC & PIT	
no ceiling!	Ceiling: ≈5600 HRK (≈80% of average net wage)

BD – Day of child's birth

Parental leave benefit (m7-m14)

	2016	2020	2022/09
Ceiling level (HRK)	≈2,700	≈5,600	≈7,500
# of mother beneficiaries	31,400	37,300	?
# of father beneficiaries	1,700	6,300	?

Main sharing schemes

Mother		Father		
4 months	+	4 months	(m7-m14)	
6 months	+	2 months	(m7-m14)	
6 months	+	0 months	(m7-m12)	most prevalent!

New: Paternity leave benefit

The leave lasts 10 days (15 days if twins or multiples are born)

Must be used during the first month of child's (children's) life

Eligibility and benefit amount: as for the Maternity leave benefit

[thus, during m1, there will be two weeks when both parents are at leave simultaneously]

Microsimulation of parental benefits

Croatian tax-benefit module

- introduced in January 2016, covering systems 2011-2015
- simulates parental benefits from the beginning
- used in planning the 2017 reform

2022 reform: predict budgetary effects

- introducing Paternity leave benefit
- increasing the ceiling of Parental leave benefit

The chance to revise / improve the model of parental benefits

- simplification of formulas
- introducing new features: e.g., participation of fathers
- improving input data

Microsimulation of parental benefits

Data problems:

P1. Underrepresentation of babies in the SILC
(i.e., households with children aged 0-2 years)

P2. Underrepresentation of top incomes in the SILC

‘Sampling’ and ‘non-sampling error’

- Sampling error: due to limited sample size
 - Top incomes (e.g., ‘top 1%’ or ‘top 0.1%’): relatively large span of incomes within a small group; more difficult to choose representative units
- Non-sampling error:
 - unit-non response
 - item non-response
 - income underreporting
 - top-coding

The Blanchet-Flores-Morgan* (BFM) correction approach

- Method for imputing information from tax data into the survey data
- Assumption: there is a point in income distribution beyond which incomes are under-represented
 - BFM approach lets the data themselves reveal this ‘merging point’
- Adjustments minimize distortions of information from the original survey; preserve desirable properties (e.g., continuity of the density function), maintain representativeness in terms of age, gender, and other covariates
- Dealing with the ‘non-sampling error’: *reweighting* of income units
 - Weights to the **left** [**right**] of the merging point are **decreased** [**increased**]
- Coping with the ‘sampling error’: *replacement* of income units
 - Creating new income units in the sample by ‘cloning’ the existing units and ascribing them high incomes (which do not appear in survey sample, but do exist in reality, i.e., in tax data)

[* Blanchet, T., I. Flores, and M. Morgan, 2022, The weight of the rich: correcting surveys with tax data, Journal of Economic Inequality]

The Blanchet-Flores-Morgan (BFM) correction approach

Programmed in STATA (bfmcorr)

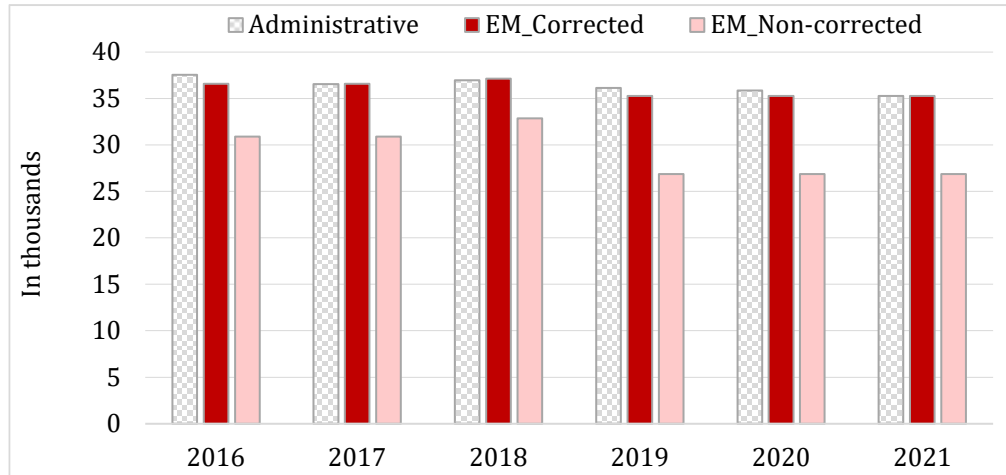
Adjustment: maintains representativeness in terms of age, gender, and other covariates

However, there is an option to **correct** the structure of population according to age, gender, and other characteristics

We correct for the number of households with small children (0, 1 and 2 years)

Baseline results: Lump-sum grant for newborn children

Number of beneficiaries



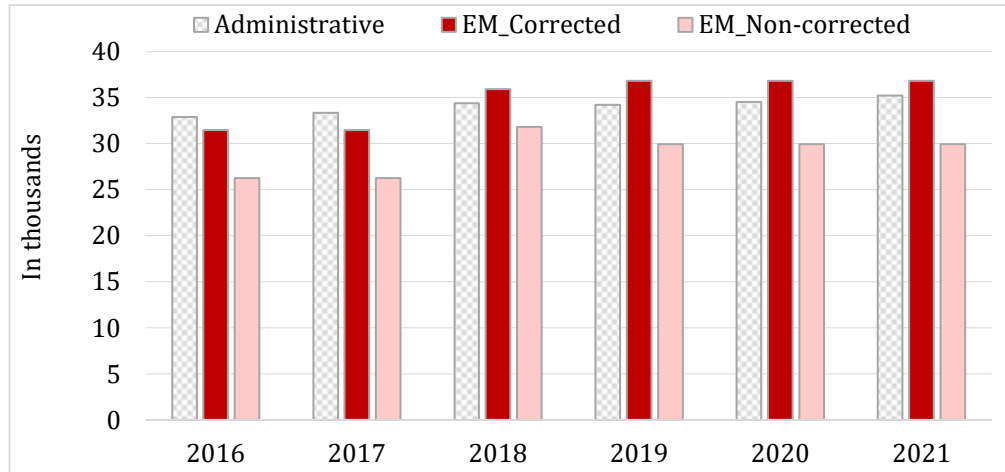
2016-2017: based on
SILC2018

2018: based on SILC2019

2019-2021: based on
SILC2020

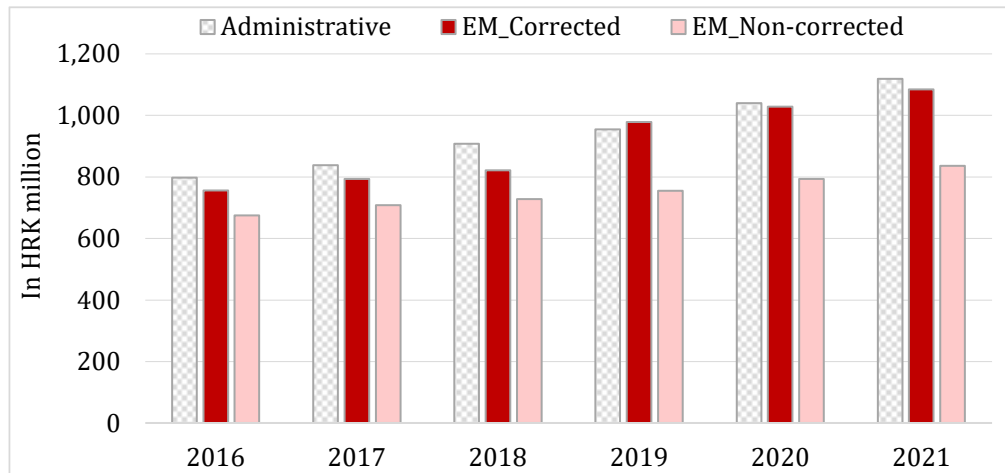
Baseline results: Maternity leave benefit

Number of beneficiaries



Assumption:
Full take-up and maximum
duration of maternity leave

Amount

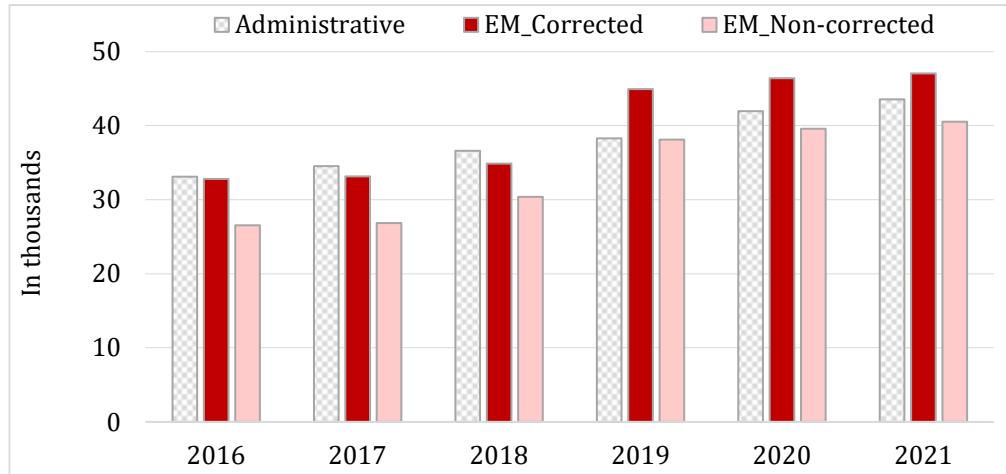


The difference between
“Corrected” and
“Non-corrected”:

- Almost fully due to correction of the number of children
- The role of top-income correction – very small

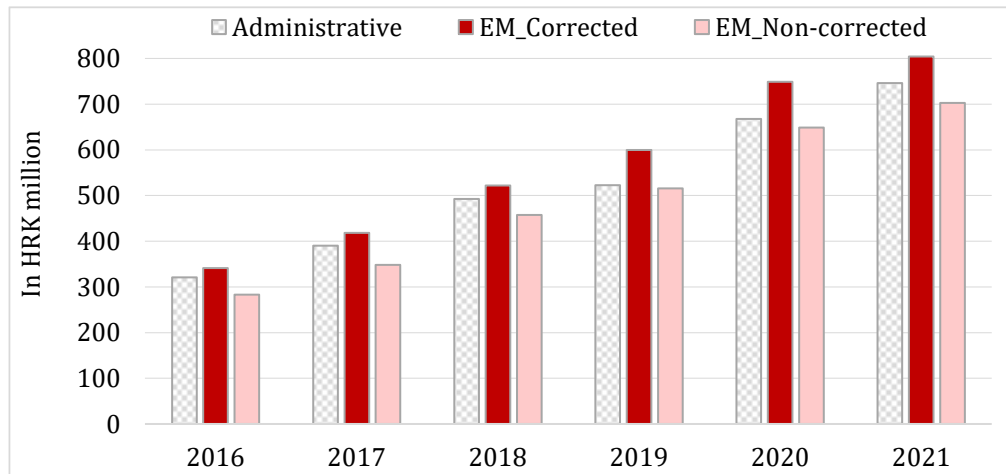
Baseline results: Parental leave benefit (m7-m14)

Number of beneficiaries



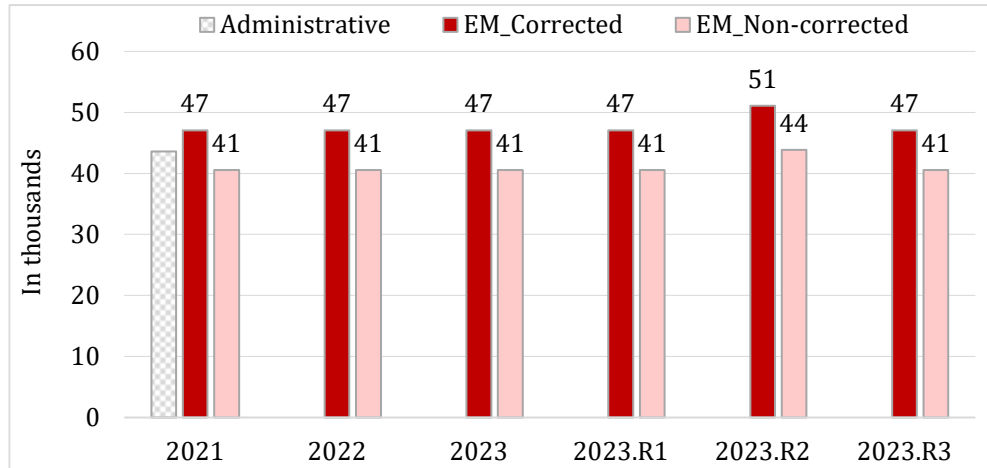
Assumption:
Full take-up and maximum
duration of parental leave

Amount



Results: Parental leave benefit (m7-m14): Reform

Number of beneficiaries



Reform scenarios:

R1. Ceiling increases from

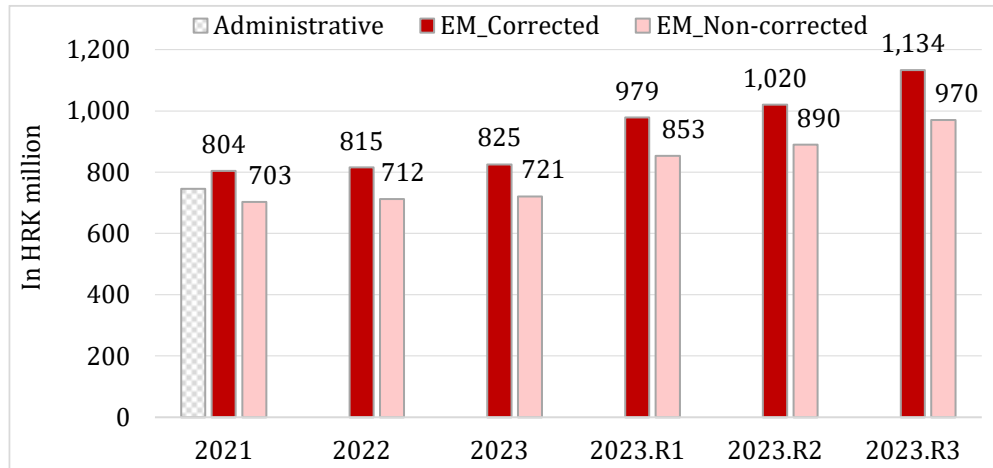
HRK 5600 to 7500

R2. Like R1, but participation

of fathers is doubled

R3. Ceiling is abolished

Amount



Concluding remarks

Parental benefits reform

- Microsimulation model with household income data: indispensable tool
- How to provide a reasonably good budgetary prediction?

Challenges of microsimulation:

- Non-representative data – in different respects
- How to model benefit take-up and behavioural reactions

Microsimulation of parental benefits is improved

- By the use of “corrected” data
- But, other adjustments have to be made...