Tax and Benefit Policies in the Enlarged Europe: Assessing the Impact with Microsimulation Models
This book is based on selected papers from the final conference of a European Commission financed project on “Improving the Capacity and Usability of EUROMOD (I-CUE)”, and is one of the first systematic collections of studies based on the European tax-benefit microsimulation model, and thus a synthesis of the scientific work of a large international group of researchers for over a decade. It is the first to focus on the New Member States.

The first chapter by Sir Anthony Atkinson sets a context for EUROMOD in EU policy-making and provides an insightful assessment of the policy processes. Prof. Holly Sutherland’s contribution describes the past, present and future of EUROMOD. The book provides novel analysis on the impact of tax and benefit systems on individuals’ incomes and work incentives. Not only actual policies are assessed, but hypothetical scenarios of interest to policy-makers as well, for example the introduction of flat taxes. The special feature of many chapters is that they are based on a comparative tax-benefit microsimulation model, EUROMOD, thus allowing a systematic and consistent comparison of countries. In addition to the 15 “old” Member States of the European Union, the model has been recently enlarged to Estonia, Hungary, Poland and Slovenia, thus allowing a wider range of comparisons. Another part of the chapters presents analysis based on national tax-benefit models in Cyprus and Lithuania, providing a selection of exemplary and innovative studies, and demonstrating the power of the microsimulation method for policy analysis. The concluding chapter by Herwig Immervoll and Orsolya Lelkes explores future priorities for tax-benefit modelling.

The central premise of the book is that more evidence is needed for an optimal policy decision, and it provides a powerful presentation on how complex information on the interaction of specific tax and cash benefit policy instruments can be presented in a concise and comprehensible way.

Orsolya Lelkes is Research Fellow and Economic Policy Analyst at the European Centre for Social Welfare Policy and Research, Vienna. Holly Sutherland is Research Professor in the Institute for Social and Economic Research (ISER) at the University of Essex, UK, and co-ordinator of EUROMOD projects.
Contents

Acknowledgements .................................................................................................5

List of Abbreviations .............................................................................................6

List of Figures, Tables and Boxes ...........................................................................11

Chapter 1
Introduction ..............................................................................................................17

Orsolya Lelkes / Holly Sutherland

References ...............................................................................................................24

Annex A: EUROMOD: version and data sources ....................................................25

Annex B: Tax-benefit systems and input datasets in EUROMOD (version D25) ..26

Annex C: Categorization of income components ..................................................27

Part I: Setting the Scene .........................................................................................31

Chapter 2
An Enlarged Role for Tax-benefit Models ..............................................................33

Sir Anthony B. Atkinson

1 Enlargement of the European Union and EUROMOD .....................................33

2 A brief (personal) history of tax-benefit models .............................................35

3 Enlarging the role of tax-benefit modelling in the European Union .............38

4 Enlarging the role of tax-benefit modelling globally ..................................43

5 Summary of main points .................................................................................44

References ...............................................................................................................46

Chapter 3
Euromod: Past, Present and Future .........................................................................47

Holly Sutherland

1 What is EUROMOD? A brief history ...............................................................47

2 Challenges from the first phase ........................................................................49

2.1 Barriers for users .........................................................................................50

2.2 Relevance for academic research ...............................................................50

2.3 Relevance for policy analysis .....................................................................51
Part II: Comparative Analyses Using the Enlarged EUROMOD

Chapter 4
The Effects of Taxes and Benefits on Income Distribution in the Enlarged EU

Chapter 5
Flat Tax Reform in Eastern Europe: A Comparative Analysis of Alternative Scenarios in Estonia, Hungary and Slovenia, Using EUROMOD

References
Annex A: Statistics on income distribution
Table of Contents

3 Description of existing and alternative policy scenarios ......................... 95
4 Effects of alternative scenarios on income distribution ......................... 101
5 Fiscal cost and change of the total tax burden .................................. 105
6 Conclusions ......................................................................................... 111
References .............................................................................................. 113
Annex ........................................................................................................ 114

Chapter 6
Alternative Tax-benefit Strategies to Support Children in Poland .......... 125
Horacio Levy / Leszek Morawski / Michał Myck
1 Introduction ......................................................................................... 125
2 Child poverty and social protection: Poland in the European context .... 128
3 Policy description ................................................................................ 131
  3.1 Poland ........................................................................................... 131
  3.2 Austria .......................................................................................... 134
  3.3 France ........................................................................................... 135
  3.4 United Kingdom ............................................................................ 137
4 Methods .............................................................................................. 139
  4.1 Model and data ............................................................................. 139
  4.2 Simulation ...................................................................................... 139
  4.3 Measurement ................................................................................ 140
5 The effects of alternative child policies in Poland .............................. 142
  5.1 Coverage and expenditure ............................................................. 142
  5.2 Poverty .......................................................................................... 146
  5.3 Targeting efficiency ...................................................................... 147
6 Conclusions ........................................................................................ 148
References .............................................................................................. 151

Part III: Evidence Based on Emerging National Models .................. 153

Chapter 7
Lina Salanauskaite / Gerlinde Verbist
Introduction .......................................................................................... 155
1 Combating child poverty: a European and a Lithuanian concern ....... 156
2 The Lithuanian family policy reform of 2004 ....................................... 159
  2.1 Main strands of the reform: direct effects .................................... 160
  2.2 Indirect effects ............................................................................. 162
3 Methodology ....................................................................................... 162
  3.1 EU-SILC capacity to simulate non-contributory family policy measures .............................................................................. 163
## Tax and Benefit Policies in the Enlarged Europe

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2 Simulation framework</td>
<td>163</td>
</tr>
<tr>
<td>3.3 Measuring distributional impacts</td>
<td>164</td>
</tr>
<tr>
<td>4 Distributional impacts of family and child benefits reform</td>
<td>165</td>
</tr>
<tr>
<td>4.1 Benefit simulation results</td>
<td>165</td>
</tr>
<tr>
<td>4.2 Disposable household income before and after the reform</td>
<td>167</td>
</tr>
<tr>
<td>4.3 Poverty and inequality before and after the reform</td>
<td>172</td>
</tr>
<tr>
<td>5 Conclusions</td>
<td>177</td>
</tr>
</tbody>
</table>

Annex 1: Rules of family benefits and EU-SILC capacity to simulate them | 179  |
Annex 2: Decomposition of poverty and inequality measures by household groups | 182  |
References                                                            | 185  |

## Chapter 8
Tax-free Income vs. In-work Tax Allowances:
Effects on Labour Market Participation in Cyprus                       | 187  |
*Panos Pashardes / Alexandros Polycarpou*

1 Introduction                                                        | 187  |
2 Empirical model and estimation                                      | 189  |
3 Simulation results                                                   | 196  |
4 Conclusions                                                         | 199  |
References                                                             | 201  |

## Chapter 9
*Herwig Immervoll / Orsolya Lelkes*

1 Tax-benefit models are powerful and informative – but often underutilized | 203  |
2 Making the most of costly infrastructure: casting the scope of models | 206  |
3 … and extending the scope of model uses                              | 208  |
4 Sharing methods and research tools: Securing access for experts in different areas | 209  |
References                                                             | 212  |

## List of Contributors
                                                            | 213  |
List of Figures, Tables and Boxes

Figures

Chapter 1: Introduction

Figure 1.1: GDP per capita in Purchasing Power Standards (PPS), 2007 (EU-27 = 100) .................................................................18

Chapter 2: An Enlarged Role for Tax-benefit Models

Figure 2.1: Median household gross income as %
mean gross household income 1967-2006 .........................42

Chapter 3: Euromod: Past, Present and Future

Figure 3.1: The EUROMOD logo ........................................49
Figure 3.2: EUROMOD operating system .............................55
Figure 3.3: Run EUROMOD tool .......................................56

Chapter 4: The Effects of Taxes and Benefits on Income Distribution in the Enlarged EU

Figure 4.1: Income composition, all households ...............74
Figure 4.2: Income composition, bottom decile by
household equivalized disposable income ....................75
Figure 4.3: Income composition, top decile by
household equivalized disposable income .................76
Figure 4.4: Income inequality before and after taxes and benefits as measured by the Gini coefficient ..................78
Figure 4.5: Redistributive effect of tax-benefit instruments, absolute change in the Gini coefficient.................................80
Figure 4.6: Income poverty rates before and after benefits..........................81

Chapter 5: Flat Tax Reform in Eastern Europe

Figure 5.1: Income inequality under different policy scenarios in Estonia, Hungary and Slovenia ........................................102
Figure 5.2: Poverty rates under different policy scenarios in Estonia, Hungary and Slovenia, in percentages ........103
Figure 5.3: Poverty rates in different age groups ....................................104
Figure 5.4: Total fiscal cost of alternative scenarios in Estonia, Hungary and Slovenia ................................................106
Figure 5.5: Effective marginal tax rates (for working age population) – median value ....................................................107
Figure 5.6: Change of tax burden per income decile in Estonia, Hungary and Slovenia (comparing alternative flat tax scenarios to the baseline) ........................................109

Chapter 6: Alternative Tax-benefit Strategies to Support Children in Poland

Figure 6.1: Spending on families and child at-risk-of-poverty rates in the EU ......................................................................129
Figure 6.2: Child at-risk-of-poverty rates – effects of family and non-family transfers in 2005 .............................................130
Figure 6.3: Poland, 2005/07 policies for two family types ..................133
Figure 6.4: Austria, 2005 policies for two family types .......................135
Figure 6.5: France, 2005 policies for two family types .......................137
Figure 6.6: United Kingdom, 2005 policies for two family types ......138
Figure 6.7: Target efficiency of social transfers .................................141
Figure 6.8: Coverage and expenditure decomposition ......................144
Figure 6.9: Coverage and expenditure per decile ..............................145
Figure 6.10: Coverage and expenditure per household type .............146
Figure 6.11: Child poverty risk (FGT indices) .....................................147
Figure 6.12: Child poverty risk per household type (FGT with $\alpha=0$) .147
Chapter 7: Reforming Child Allowances in Lithuania

Figure 7.1: The simulation framework ................................................................. 164
Figure 7.2: Average yearly equivalized household income
by household types, Lt ................................................................. 169
Figure 7.3: Average yearly equivalized household income change due
to direct and indirect effects (by household types), Lt .......... 171
Figure 7.4: Poverty changes: implications for total population .......... 172
Figure 7.5: Inequality changes: implications for total population ...... 173
Figure 7.6: Poverty changes (%): implications for
selected household groups ................................................................. 174
Figure 7.7: Inequality changes (%): implications for
selected household groups ................................................................. 176
# Tables

**Chapter 2: An Enlarged Role for Tax-benefit Models**

Table 2.1: EU structural indicators .................................................................39

**Chapter 4: The Effects of Taxes and Benefits on Income Distribution in the Enlarged EU**

Table A1: Income composition (% of disposable income), all households .................................................................85
Table A2: Income composition (% of disposable income), bottom decile ........................................................................86
Table A3: Income composition (% of disposable income), top decile .................................................................87
Table A4: Income inequality before and after taxes and benefits as measured by the Gini coefficient ........................................................................88
Table A5: Redistributive effect of tax-benefit instruments, Gini coefficient ........................................................................89
Table A6: Income poverty rates before and after benefits ........................................................................90

**Chapter 5: Flat Tax Reform in Eastern Europe**

Table 5.1: Features of EUROMOD datasets: Estonia, Hungary, and Slovenia .................................................................95
Table 5.2: Flat tax scenarios ........................................................................98
Table 5.3: Estonia: Main changes in the tax system compared to the baseline .................................................................99
Table 5.4: Hungary: Main changes in the tax system compared to the baseline .................................................................100
Table 5.5: Slovenia: Main changes in the tax system compared to the baseline .................................................................100
Table A1: Personal income tax parameters for 2005 in Estonia, Hungary, and Slovenia, as simulated in EUROMOD ................................114
Table A2: Estonia: poverty rates under the alternative scenarios using alternative thresholds (40, 50, 60, 70% of the baseline median), 2005 ........................................................................116
Table A3: Estonia: poverty rates under the alternative scenarios by age and gender groups, 2005 ........................................116
Table A4: Estonia: percentage of winners and losers in comparison to baseline scenario.........................117
Table A5: Hungary: poverty rates under the alternative scenarios using alternative thresholds (40, 50, 60, 70% of the baseline median), 2005..................................................117
Table A6: Hungary: poverty rates (60% of the baseline median) by age and gender groups, 2005.................................118
Table A7: Hungary: percentage of winners and losers in comparison to baseline scenario........................................118
Table A8: Slovenia: poverty rates under the alternative scenarios using alternative thresholds (40, 50, 60, 70% of the baseline median), 2005..................................................119
Table A9: Slovenia: poverty rates under the alternative scenarios by age and gender groups, 2005.................................119
Table A10: Slovenia: percentage of winners and losers in comparison to baseline scenario........................................120
Table A11: Estonia: Income inequality under various policy scenarios..................................................120
Table A12: Hungary: Income inequality under various policy scenarios..................................................121
Table A13: Slovenia: Income inequality under various policy scenarios..................................................121
Table A14: Constant poverty lines, in EUR PPP (monthly) .................................................................122
Table A15: Estonia: Fiscal cost and change of total tax burden 2005...........................................122
Table A16: Hungary: Fiscal cost and change of total tax burden 2005.123
Table A17: Slovenia: Fiscal cost and change of total tax burden 2005..124

Chapter 6: Alternative Tax-benefit Strategies to Support Children in Poland

Table 6.1: Coverage and expenditure.................................................................142
Table 6.2: Factors applied at monetary amounts of the Austrian, French and UK systems to make them GDP per capita or Budget neutral with respect to PL-2007 ...........................................143
Table 6.3: Target efficiency ........................................................................148
Chapter 7: Reforming Child Allowances in Lithuania

Table 7.1: State spending on non-contributory family policy measures

Table 7.2: Family benefits weights adjusted: simulation versus administrative data

Chapter 8: Tax-Free Income vs. In-Work Tax Allowances

Table 8.1: Labour market participation equation
Table 8.2: Labour income prediction equation
Table 8.3: Participation changes under the tax-allowances and tax-free income scenarios
Table 8.4: Participation differences between the tax-free and tax-allowances scenarios by age and number of children

Chapter 9: Looking Ahead: What Priorities for Tax-benefit Modelling?

Table 9.1: Overview of tax-benefit microsimulation models

Boxes

Box 3.1: Key results of the I-CUE project
Box 4.1: A summary of the 2005 tax-benefit system in Estonia, Hungary, Poland and Slovenia
Box 4.2: Main income concepts in EUROMOD