The tax-benefit microsimulation model for the European Union

EUROMOD is a tax-benefit microsimulation model for the European Union (EU) that enables researchers and policy analysts to calculate, in a comparable manner, the effects of taxes and benefits on household incomes and work incentives for the population of each country and for the EU as a whole.

As well as calculating the effects of actual policies it is also used to evaluate the effects of tax-benefit policy reforms and other changes on poverty, inequality, incentives and government budgets.

EUROMOD is a unique resource for cross-national research, designed to produce results that are comparable across countries and meaningful when aggregated to the EU level.

EUROMOD is managed, maintained, developed and updated by a team of researchers in ISER. This is done in collaboration with national experts.

The current version of EUROMOD represents the accumulation of technical developments and expertise over a number years and involving a large team of people. For more information on the design and development of EUROMOD click here.

www.euromod.ac.uk

Athens hosted EUROMOD annual project meeting over the summer

Athens, at the epicentre of the world’s media attention, teetering on the brink of Europe during the first week of July, proved to be a fascinating and hugely hospitable host for the EUROMOD annual project meeting.

The University of Athens, a stone’s throw from the TV cameras and referendum crowds at Syntagma Square and the parliament building, was a great venue for a full house including representatives from the Greek government departments, the European Commission, EUROSTAT and so many of the national teams.

The meeting was opened by Holly Sutherland, introducing Jack Kneeshaw as the new Executive Director of EUROMOD and reflecting on the successful past year of EUROMOD as its relevance as a tool for policy makers in individual countries and across Europe becomes increasingly evident and appreciated.

The first full session explored new developments in EUROMOD functionality with presentations from Alari Paulus on the updating factors set-up and a demonstration of the ‘Policy Effects Tool’. EUROMOD Software Developer Kostas Manios discussed ‘Version Control: a collaboration platform for EUROMOD’ and Tine Hufkens gave a demo of the ‘Hypothetical Household Tool’. Francesco Figari, Alari Paulus and Iva Tasseva gave a stimulating talk rounding up the recent research uses of EUROMOD. Continued on next page
EUROMOD project meeting

Continued from previous page The afternoon session looked at the further policy significance of nowcasting risk of poverty and the policy uses of EUROMOD by the European Commission, which included very interesting presentations from Oliver Bontout on DG-EMPL uses and from Salvador Barrios on the use of EUROMOD for fiscal and economic surveillance at the European Commission.

Other research presentations on the first day included a round up on distributional effects of the latest tax-benefit policy changes in Greece (from Maria Flevotomou), the UK (from Paola De Agostini) Germany (from Sanja Vujackov) and Italy (from Francesco Figari). Finally Chrysa Leventi presented the results of an ex ante poverty and fiscal evaluation of a guaranteed minimum income programme in Greece.

The second day programme looked at data issues – particularly developments in the EU-SILC, alongside presentations from the Croatian and Belgian teams on working with SILC datasets and a discussion on the annual updating process, with suggestions for a new plan going forward. A lengthy session on national experiences highlighted some of the excellent work national teams are taking forward working directly with policy makers, with presentations on work with the finance ministry (from the Austrian team), changes to family support (from the Polish team), working with government departments on tax reforms (with the Latvian team), reforming child support (from the Finnish team) and working with a decentralised country (from the Spanish team).

Finally the programme ended with a fascinating discussion about presentation, promotion and communications, ideas for the newsletter, new website and how to promote EUROMOD uses to policymakers and other organisations. The room was rich with ideas and the discussion provoked a clear action plan for the team to take forward.

The meeting was especially inspiring given the huge interest in the Greek economic situation at that precise moment in time – and Panos Tsakloglou, of the Greek team, was able to join us between many media appearances. It was a memorable meeting in an unforgettable setting – the conference dinner was held in a beautiful roof top taverna under the shadow of the Acropolis – and the Greek team were exceptional hosts.

Many thanks to Cara McGenn for all her work in organising the event, Chrysa Leventi and the kind support and enthusiasm of the Greek EUROMOD team.
Projects using EUROMOD

This time we highlight the research project ‘Social Inequality and Life Course Vulnerability to Poverty Among Families with Children in European Welfare Regimes: A Stress Testing Exercise’

This project, financed by the● New Opportunities for Research Funding Agency Co-operation in Europe (NORFACE) research programme● ‘Welfare State Futures’, will be realised by Jekaterina Navicke (Vilnius University) and Daria Popova (ISER).

The probability of poverty has been traditionally associated with the position of an individual in the social stratification system, i.e. parameters such as gender and social class. At the same time poverty can be triggered by life course events, such as childbirth, unemployment, divorce, etc.

Evidence suggests that these two types of parameters are interlinked: firstly, life course events appear to be unequally distributed across social groups; secondly, although the above-mentioned events are widespread their negative consequences are also distributed unequally, which might result in a cycle of cumulative disadvantage. Public policies, in particular family policies, can play an important role both in reducing, by means of horizontal redistribution, the negative consequences when biographical risks materialise, as well as in tackling social inequalities through vertical redistribution mechanisms.

This study attempts to disentangle the effects of public policies, social stratification determinants and life course events on unequal distribution of vulnerability to poverty in Europe. The typology of family policy regimes by Gauthier (1996, 2000) is used as a reference point for the choice of countries. The researchers will analyse how different tax-benefit systems contribute to families’ capacity to avoid poverty after biographical events, such as childbirth and divorce, for various social strata.

The analysis will use EUROMOD and EU-SILC data. Hypothetical income shocks due to childbirth and family dissolution for each vulnerable household will be simulated in the sample by applying the ‘stress-testing’ methodology developed by Atkinson (2009). The study will then examine whether these events have different poverty triggering effect for different social groups and how different types of tax-benefit arrangements, parental leave benefits and child maintenance in particular, help mitigate these risks, i.e. whether they reduce or reinforce social inequalities.

EUROMOD-related research presented at conferences

The 5th World Congress of the International Microsimulation Association (IMA) took place in Luxembourg on 2-4 September 2015. Fifteen EUROMOD-related papers were presented, focusing on the areas of ‘Tax-Benefit analysis, comparisons and decomposition’, ‘Behavioural microsimulation: incentives and take-up’ and ‘Labour supply’. Download the full programme of the conference here.

Sixth meeting of the Society for the Study of Economic Inequality (ECINEQ)


71st Annual Congress of the International Institute of Public Finance (IIPF): “Taxation in a Global Economy”

Francesco Figari presented ‘The joint decision of labour supply and childcare in Italy under costs and availability constraints’; Iva Tasseva presented ‘Decomposing income changes in the UK in the 2000s’; and Christian Wittneben presented ‘Crisis, Austerity and Automatic Stabilization’.

IJM has a new editor

At the last IMA World Congress in Luxembourg, Matteo Richiardi (Institute for New Economic Thinking, Oxford) was elected as the new editor of the International Journal of Microsimulation (IJM). You can access the new journal flyer PDF here.

The IJM covers research in all aspects of microsimulation modelling. It publishes high quality contributions making use of microsimulations to address specific research questions in all scientific areas, as well as methodological and technical issues.

The journal welcomes contributions of research articles, short research notes, data watch notes, book reviews, and software reviews. See the journal website ● for further details.

Where they turned up

A selection of newly-published journal articles using EUROMOD


Let us know of your journal publications using EUROMOD, and don’t forget to submit your articles to the EUROMOD working paper series!
EUROMODNEWS

Working papers

- Fiscal consolidation policies in the context of Italy’s two recessions EUROMOD Working Paper Series EM7/15
  Authors: Francesco Figari, Carlo Fiorio
  Publication date: 23 Jun 2015
  Abstract: The Italian Great Recession has a double-dip pattern. After the start of the global financial crisis, Italy experienced a second serious recession in 2011 because of the sovereign debt crisis. The reaction of Italian governments was mild at the beginning and more convinced since the start of the sovereign debt crisis in 2011. Adopted policies contributed to realign public finances at a sustainable level, while household real income decreased by 13 per cent and quite unevenly along the household income distribution. The medium-term outlook is still uncertain: a great deal depends on the capacity of the Italian economy to reduce the level of public debt and to return to sustained economic growth, which has been very weak for more than a decade.

- Research note: the effect of different indexation scenarios on child poverty in the UK EUROMOD Working Paper Series EM8/15
  Authors: Paola De Agostini, Iva Valentino Tasseva
  Publication date: 23 June 2015
  Abstract: Using the tax-benefit microsimulation model EUROMOD and Family Resources Survey, we investigate what would have happened to child poverty in the UK in the periods 2010/11–2015/16 and 2015/16–2020/21 under a range of different indexation scenarios of children’s benefits. We find that between 2010/11 and 2015/16 both the relative and absolute child poverty rates would have been lower if children’s benefits were uprated by RPI or if the government had introduced the Child Tax Credit uprating package it promised in 2010. Uprating children’s benefits up to 2020/21 as announced by the government in the Autumn Financial Statement in 2014 would result in real benefit cuts and increase in child poverty. However, triple lock indexation of children’s benefits would sustain their real value and would reduce child poverty rates substantially.

- Nowcasting risk of poverty and low work intensity in Europe EUROMOD Working Paper Series EM9/15
  Authors: Olga Rastrigina, Chrysa Leventi, Holly Sutherland
  Publication date: 23 June 2015
  Abstract: Very low work intensity and at-risk-of-poverty are two of the three indicators used for monitoring progress towards the Europe 2020 poverty and social exclusion reduction target. Their timeliness is critical for tracing the effectiveness of policy interventions towards reaching this target. However, due in part to the complicated nature of microdata collection and processing, official Eurostat estimates of these indicators become available with a significant delay. This paper presents a method of estimating (‘nowcasting’) very low work intensity and poverty risk using the tax-benefit microsimulation model EUROMOD based on EU-SILC data and combined with up-to-date macro-level statistics from the Labour Force Survey. The method is applied to 12 EU Member States for the period 2009-2013. Its performance is assessed by comparing the EUROMOD estimates with the official Eurostat statistics for the years for which the latter are available. The most important measurement issues of the work intensity indicator that are relevant in the context of nowcasting are also discussed.

- A bird’s eye view on 20 years of tax-benefit reforms in Belgium EUROMOD Working Paper Series EM10/15
  Authors: André Decoster, Sergio Perelman, Dieter Vandelannoote, Toon Vanheukelom, Gerlinde Verbiest
  Publication date: 2 July 2015
  Abstract: Belgium has seen major changes in its tax-benefit system over the past twenty years. These changes have, to a large extent, co-determined the evolution of disposable incomes of Belgian households on one hand, and their incentives to work on the other. In this paper we assess equity and efficiency aspects of changes in tax-benefit policies over the full course of 1992-2012. By simulating effects of current and past tax-benefit policies using the microsimulation model MEFISTO-EUROMOD, we summarize the shifts in policy orientation over this period using two summary measures of redistribution and work incentives. Our three main findings are: 1) the changes in the tax-benefit system have to a large extent been pro-poor, and redistribution has been increased; 2) the introduction of an earned income tax credit and the lowering of personal income taxes has contributed to improve work incentives, but this effect was partially eroded by an increase in unemployment benefits since 2000; 3) the results crucially depend on whether one chooses as ‘no policy change’ counterfactual indexation with inflation or indexation with nominal wage growth.

  Authors: Paola De Agostini, Alari Paulus, Iva Valentino Tasseva
  Publication date: 2 July 2015
  Abstract: More than half of the EU countries have become poorer and more unequal since the start of the crisis in 2008. Despite lack of timely household micro data, using microsimulation techniques with up-to-date information on policy rules enables us to estimate the direct effect of tax-benefit policy changes in 2008-2014 on the income distribution, poverty and inequality levels in 10 EU countries, as well as track most recent trends by evaluating policy effects in 2013-2014. We identify and quantify these effects using the EU tax-benefit model EUROMOD to construct relevant counterfactual scenarios. Our results indicate that among these countries, most managed to pursue policies without adverse distributional effects, despite of challenging economic problems in this period. However, this has been accompanied by reductions in household income in several countries. There have also been some cases of clearly regressive changes in particular policy instruments. Overall, our results demonstrate the importance of comprehensive regular indexation to avoid the erosion of benefit amounts and tax thresholds over time, and specific population groups systematically gaining or losing relative to others.

  Authors: Olga Rastrigina, Chrysa Leventi, Holly Sutherland
  Publication date: 18 August 2015
  Abstract: The at-risk-of-poverty rate is one of the three indicators used for monitoring progress towards the Europe 2020 poverty and social exclusion reduction target. Timeliness of this indicator is crucial for monitoring of the social situation and Continued on next page
Continued from previous page

of the effectiveness of tax and benefit policies. However, partly due to the complexity of EU-SILC data collection, estimates of the number of people at risk of poverty are published with a significant delay. This paper extends and updates previous work on estimating (‘nowcasting’) indicators of poverty risk using the tax-benefit microsimulation model EUROMOD.

The model’s routines are enhanced with additional adjustments to the EU-SILC based input data in order to capture changes in the employment characteristics of the population since the data were collected. The nowcasting method is applied to seventeen EU Member States. AROP rates are estimated up to 2014 for ten countries and 2013 for the remaining seven countries. The performance of the method is assessed by comparing the predictions with actual EU-SILC indicators for the years for which the latter are available.

**Were we really all in it together? The distributional effects of the 2010-2015 UK Coalition government’s tax-benefit policy changes: an end-of-term update EUROMOD Working Paper Series EM14/15**

**Authors**

Paola De Agostini  
John Hills  
Holly Sutherland

**Publication date** 19 August 2015

**Abstract** This paper examines the distributional impacts of the changes to benefits, tax credits, pensions and direct taxes between the UK Elections in May 2010 and in May 2015. It also looks ahead to the longer-term effects of changes and plans that were announced by the 2010-2015 Coalition government, such as the complete introduction of Universal Credit and changes to the ways benefits, pensions and tax brackets are indexed from year to year, modelling what effects these would have after five more years. It shows that the changes 2010-15 did not have a common effect on all household incomes and nor did the direct tax-benefit changes contribute to deficit reduction. In effect reductions in benefits and tax credits financed part of the cuts in direct taxes. We find that the relative extent to which the changes most favoured the rich or the poor is sensitive to a wide range of analytical choices and assumptions, but under most sets of assumptions the main gains were in the upper middle of the income distribution and the main losers were at the bottom and those close to, but not at, the very top.

Across most of the distribution the impact of the changes was regressive. Looking forward to the effects that Coalition policies would have had by 2020 we find a more strongly regressive picture but with open questions about the effect of Universal Credit on those not currently receiving their entitlements to means-tested payments, and so potentially increasing some of the lowest incomes.

**Work incentives at the bottom of the income distribution and for model families in Lithuania EUROMOD Working Paper Series EM14/15**

**Authors** Jekaterina Navicke  
Romas Lazutka

**Publication date** 30 September 2015

**Abstract** The aim of this paper is to evaluate the impact of cash social benefits on work incentives at the bottom of the income distribution and among selected model family types in Lithuania. The analysis of the work incentives in Lithuania is carried out for the period of 2005-2013 based on a combination of measures estimated using tax-benefit microsimulation model EUROMOD and official OECD/EC indicators. The analysis revealed high disincentives to work at the bottom of the Lithuanian income distribution, dominated by the effect of cash social benefits compared to taxes or social insurance contributions. A strong trade-off between benefit adequacy and work incentives is built into the design of the Lithuanian cash benefit system, that of social assistance in particular. The challenge for policy design is thus to encourage and promote active labour market participation among low earners without eroding the minimum income protection floor.

**Social policy in a cold climate**

**Were we really all in it together? The distributional effect of the 2010-2015 Coalition government’s tax-benefit policy changes: an end-of-term update**

This analysis — by Paola De Agostini, John Hills and Holly Sutherland using the UK part of EUROMOD — shows the effect of the UK Coalition government’s benefit and direct tax policies during their period of office 2010-2015 on the distribution of incomes.

Changes to direct taxes, tax credits and benefits from were mainly regressive and did not contribute to deficit reduction. In effect reductions in benefits and tax credits financed part of the cuts in income tax.

The paper also examines some of the reasons for differences from other analyses, including the distributional analysis of the UK Treasury. It finds that the relative extent to which the changes most favoured the rich or the poor is sensitive to a wide range of analytical choices and assumptions. Nevertheless, but under most sets of assumptions, the main gains were in the upper middle of the income distribution and the main losers were at the bottom and those close to, but not at, the very top.

Looking forward to the effects that Coalition government policies would have had by 2020 the paper finds a more strongly regressive picture but with open questions about the effect of the new Universal Credit on those not currently receiving their entitlements to means-tested payments, and so potentially increasing some of the lowest incomes.

It updates the authors’ earlier research and is available from the LSE website as well as being a EUROMOD Working Paper.
Meet the EUROMOD national teams: the Spanish team

In this edition of EUROMOD NEWS, we introduce you to the three members of the Spanish EUROMOD team

The three members of the Spanish EUROMOD team are Marta Adiego, María Teresa Pérez and María Milagros Paniagua.

Marta Adiego is Technical Advisor at the Institute of Fiscal Studies of Spain (IEF). She became a civil servant in 2000 and worked as a statistician for the National Institute of Statistics of Spain for seven years, most of them in the Statistics on Living Conditions Survey department. Since 2008 she has worked for the IEF where the Spanish EUROMOD team is located.

She obtained a degree in Mathematics at Universidad Complutense, Madrid, Spain. Her areas of interest are income inequality, income distribution and public policy. She is pursuing a PhD in applied economics. She has published journal papers in Revista de Economía Aplicada, Revista de Administración Sanitaria Siglo XXI and European Journal of Health Economics as well as other working papers and book chapters. She has been working in the team since 2009.

Maria Teresa Pérez is Research Analyst at the IEF since October 2001. Until that date, she worked as Head of Section for the Ministry of Finance and for the Ministry of Public Works. She has a degree in Economics and Business from the Autonoma University.

Her duties at the institute as a research officer involve elaborating research reports in public policy. She has published several journal papers in Presupuesto y Gasto Público and many IEF working papers. She has been part of the Spanish team since 2011.

María Milagros Paniagua is Head of the Research Unit at the IEF. Before joining the IEF in 2009, she first worked for the private sector (1999-2004) and then for the Spanish National Statistic Institute (INE) as a State Statistician.

With a Bsc in Mathematics and Statistics and PhD in Economics, her main fields of interest are policy evaluation, European Cohesion Policy, redistributive effects of tax and transfer policies using microsimulation tools, labour supply, program evaluation and measurement of poverty and inequality.

She has been part of the Spanish EUROMOD team since 2009.

Some of the highlights of recent research by the Spanish EUROMOD team

The Spanish EUROMOD team has recently focused its research on the Personal Income Tax reform (PITR), namely its redistributive effects and impact on average incomes. Several publications try to identify those effects. The PITR is set to be put in place in 2015-2016.

Now, due to the debate generated by the PITR there is growing interest in the analyses of the effects of PIT tax credits, both national and regional. First of all the team is studying the redistributive effects of the existence of joint PIT reports for some families.

Regional policies’ differences and their effects have been another important research topic in Spain. Due to the great differences between regions, the Spanish team has analyzed some of the regional policies’ effects, particularly the regional child benefits.

Additionally the team is making a big effort to find ways of improving input data quality in EUROMOD. Matching of different data bases, social security reports, household budget surveys and income and living conditions surveys would be a decisive step forward in tax-benefit microsimulation, therefore imputation methods and matching techniques are being investigated in order to enhance data quality.

Special focus has also been put into the effects of incentives to work within the tax and benefit system in terms of efficiency and equity, such as the well known in-work benefits.

How the team’s research with EUROMOD in Spain is used by policy makers and others

EUROMOD analyses can be used as a support tool for policy makers as it allows them to have information about ex ante evaluation of policies, the works about PIT reform are the best example of this use.

University fellows make use of EUROMOD for different analysis about PIT and benefits effects, there are examples of works related to the redistributive effects of monetary policies and in particular of child policies and the minimum income guarantee.
EUROMOD: introducing the team

In this edition of EUROMOD NEWS, Alari Paulus, EUROMOD Research Fellow, describes his work

What is your background? I joined ISER in 2006 and have been involved in the EUROMOD venture for almost 10 years by now. Prior to that I was a member of the Estonian national team, working in PRAXIS Center for Policy Studies where together with Andres Võrk we developed a national tax-benefit model for Estonia. Sometime after we started collaborating with ISER, there was a job opening in the Essex team (which consisted of Holly and Horacio back then) and I decided to apply. It surely turned out to be more than a short stint on the ‘other side’.

What are your research interests? My research interests include the distributional and behavioural effects of public policies, tax compliance, optimal design of tax-transfer systems, income inequality and redistribution from an international perspective, and fiscal microsimulation. Broadly speaking, public economics.

Which countries do you work on? I have constructed models for Estonia, Lithuania, Greece and Ireland in EUROMOD and have advised the development of several other country modules. In my current developer role, I am responsible for maintaining and updating the Estonian model.

Do you have any special responsibilities? To entertain my colleagues (without them knowing)! Apart from this, I also help to devise EUROMOD general modelling principles and guidelines. There is a group of developers which meets on a regular basis to discuss such issues and as its longest serving member try to contribute towards our institutional memory. (I am probably the only EUROMOD developer left who has used the version of the model before it went through major re-developments.) I am also organising EUROMOD team research meetings.

What are you working on at the moment? As always, there are a number of research papers at various stages but currently I am actively working on a paper exploring the optimality of means-tested vs universal benefits, which is part of the ImPRovE project. Regarding the model development then we recently finished an annual update for the Estonian component.

What do you enjoy most about working with EUROMOD? I have always appreciated the very strong international element of EUROMOD and that is what attracted me in the first place. It is reflected in almost every aspect, from the scope of the model (i.e. countries) to people involved (developers, national teams, users)…

Would you like to share any recent highlights? There is always something exciting. Though I must admit that it has all become rather civilised. For example, technical discussions nowadays do not resemble much the fierce debates back in the ‘old days’, sometimes lasting for hours (the accompanying picture is from that era, by the way).