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 of years and involving a large team of people. For more information on the design and development of EUROMOD click here.

www.iser.essex.ac.uk/euromod

Poor lose, and rich gain from UK direct tax and benefit changes since May 2010 – without cutting the deficit

New research by the Institute for Social and Economic Research and the London School of Economics, using EUROMOD, shows who has gained or lost most as a result of the Coalition’s policy changes

The researchers, Paola De Agostini, John Hills and Holly Sutherland analysed the impact of benefit and direct tax changes since the UK general election in 2010 in detail. The study found that:

• the poorest income groups lost the biggest share of their incomes on average (and those in the bottom half of incomes lost overall).
• in contrast, those in the top half of incomes gained from direct tax cuts, with the exception of most of the top 5 percent – although within this 5 percent group those at the very top gained, because of the cut in the top rate of income tax.
• in total the changes have not contributed to cutting the deficit. Rather, the savings from reducing benefits and tax credits have been spent on raising the tax-free income tax allowance.
• the analysis challenges the idea that those with incomes in the top tenth have lost as great a share of their incomes as those with the lowest incomes.

Treasurer analysis, suggesting that those at the top have lost proportionately most starts from January 2010 and therefore includes the effects of income tax changes at the top announced by Labour in 2009 and taking effect in April 2010, before the election.

But if the Coalition’s impacts are measured comparing the system in 2014-15 with what would have happened if the system inherited in May 2010, they have more clearly regressive effect.

This resulted from the combination of:
• changes to benefits and tax credits making them less generous for the bottom and middle of the distribution;
• changes to Council Tax and benefits from which those in the bottom half lost but the top half gained;
• higher personal income tax allowances which meant the largest gains for those in the middle, but with some income tax increases for the top 5 per cent; and
• the ‘triple lock’ on state pensions which were most valuable as a proportion of their incomes for the bottom half.

Some groups were clear losers on average – including lone parent families, large families, children, and middle-aged people (at the age when many are parents), while others were gainers, including two-earner couples, and those in their 50s and early 60s.

Holly Sutherland, Director of EUROMOD at the Institute for Social and Economic Research (ISER) at the University of Essex commented:

“It is striking how seemingly technical issues or minor differences in assumptions like which tax system is taken as the starting point for Coalition reforms, or whether to assume 100% take-up of benefits, have very big implications for what we conclude about whether the rich or the poor were harder hit.” Continued overleaf
Understanding Changes in Income Inequality in the Austerity Period Workshop – a look back

This workshop was organised jointly by the ESRC Research Centre on Micro-Social Change and the EUROMOD Project and took place on 15-16 September at the University of Essex

It provided the opportunity for academics to analyse different aspects of inequality in economic outcomes (such as household income, consumption, wealth, earnings and employment) in developed societies, and to assess how welfare states are responding.

We welcomed around 70 guests from economics and other social sciences. The first day of the workshop started with two presentations on mobility given by Philippe Van Kerm (CEPS/INSTEAD) on ‘Household income mobility during Great Recession years in Europe’ and Rolf Aaberge (Statistic Norway) on ‘The ins and outs of top income mobility’. The second session included Mathias Dolls (ZEW) who presented a paper on ‘Decomposing changes in the income distribution in Europe in 2030’ and Anne-Catherine Guio (CEPS/INSTEAD) who gave a talk on the ‘Evolution of material deprivation during the crisis’.

In the afternoon, the keynote speaker, Richard Blundell (UCL and IFS) gave a talk on ‘Income Shocks, Assets and Labour Supply: Understanding Inequality Dynamics’. The aim of the presentation was to lay out a framework for examining the role of interactions between labour market shocks, asset markets shocks and changes to the tax and welfare system, in the evolution of inequality, allowing an interpretation of what has happened in the UK, and also in the US and elsewhere.

After the presentations, the participants walked to the restaurant where, with a glass of wine, they attended five poster presentations given by David Ruiz (Universidad de Alcalá) on ‘Income mobility and economic insecurity in developed countries during the Great Recession: Spain vs. the US’, Michael Savage (ESRI, Dublin) on ‘Recession, Austerity and Distribution: Evidence from Ireland’, Andrew Hood (Institute for Fiscal Studies) on ‘The short and medium term impacts of the recession on the UK income distribution’, Iva Tasseva (University of Essex) on ‘Decomposing changes in the UK income distribution’ and Toon Vanheukelom (KU Leuven) on ‘Efficiency And Equity Aspects of 20 Years of Tax and Benefit Reforms in Belgium: Microsimulation Results’.

The presentations of the second day of the workshop started with Andreas Peichl (ZEW) on ‘Crisis, austerity and automatic stabilisation’ and Daniel Waldenström (Uppsala University) on ‘Wealth Inequality and the Great Recession: Evidence from Sweden’. In the last session of the workshop, Martin O’Connell (IFS) gave a talk on ‘Shopping around? Households’ ability to maintain nutritional quality over the Great Recession’ and Marianne E. Page (University of California, Davis) on ‘The Kids Will Be Alright: Long Term Effects of ‘Growing Up’ During a Recession’.

Click here for the workshop presentations.

Poor lose and rich gain from UK tax and benefit changes – without cutting the deficit at all

Continued from previous page

John Hills, Director of the Centre for Analysis of Social Exclusion at LSE, commented: “What is most remarkable about these results is that the overall effect of direct tax and benefit changes under the Coalition have not contributed to cutting the deficit. The savings from benefit reforms have been offset by the cost of raising the tax-free income tax allowance. But those with incomes in the bottom half have lost more on average from benefit and tax credit changes than they have gained from the higher tax allowance.”

The paper was prepared as part of CASE’s Social Policy in a Cold Climate programme which is funded by the Joseph Rowntree Foundation, Nuffield Foundation and Trust for London. The views expressed are those of the authors and not necessarily those of the funders.

The publication is available to download from the LSE website.
Meet the EUROMOD national teams: the Italian team

The three members of the team are Lidia Ceriani, Carlo Fiorio and Chiara Gigliarano, who work closely with Francesco Figari, one of the original members of the EUROMOD team at Essex now based at the University of Insubria.

- **Lidia Ceriani** is currently a consultant at the World Bank, Poverty Global Practice, Washington DC, where she is working on poverty measurement methodology and on the welfare impact of fiscal and social policies. A Ph.D. graduate in Public Economics from the University of Pavia, she has been formerly lecturer at Bocconi University, Milan. Her research interests are in the fields of income distribution, poverty measurement and welfare effects of public policies.

- **Carlo Fiorio** is Associate Professor of Public Finance at the University of Milan. During his Ph.D at the LSE, he developed TABEITA, a tax-benefit microsimulation for Italy allowing the net-to-gross conversion of disposable income currently used also to produce the EUROMOD input data for Italy. At present, he is also in charge of co-ordinating a project at Irvapp (Research institute for the evaluation of public policies based in Trento, Italy) for developing TREMOD a microsimulation model using EUROMOD for the Trento Autonomous Region. His research interests include public economics, applied econometrics, inequality analysis, labour economics.

- **Chiara Gigliarano** is Assistant Professor of Statistics at Marche Polytechnic University in Ancona, Italy. She got a Ph.D. in Statistics at Bocconi University in 2007, where she also teaches Statistics. She was an InGRID visitor at ISER, Essex University in June 2014. Her research interests are in the fields of income distribution, polarisation and deprivation measurement as well as survival analysis.

After being introduced to the EUROMOD team by Conchita D’Ambrosio in 2006, they have been responsible for the provision of input data and, more recently, for the modelling of the Italian tax-benefit system within EUROMOD.

The Italian EUROMOD team is currently working on various tax-benefit microsimulation projects. One involves the analysis of the joint distributional effects of both direct and indirect taxation in Italy. In most of the European countries (including Italy) consumption micro data from household budget survey does not include information on income. Therefore, it is necessary to impute household expenditure information into income micro data sets. The team plans to do it by statistical matching of IT-SILC and the Italian household budget surveys data for Italy. They will use different statistical methods, including propensity score matching, coarsened exact matching, and regression-based statistical matching, aiming at incorporating them into EUROMOD.

Another project involves the simulation of taxes on financial income, starting from the information that households provide in the Italian version of SILC. This is a relevant project to assess recent national policies that increased the proportional tax rate on capital incomes (excluding government bonds) from 12.5% to 26% in just a few years. The main challenge of this project is the validation of input and simulated data, given the scant availability of administrative statistics regarding financial income owned by the household sector only.

Carlo is also in charge of co-ordinating a team of researchers at Irvapp for the development of TREMOD, as mentioned above. This project, founded by the local government, uses an original dataset developed at Irvapp by matching a representative panel survey of the Trento region on household composition, employment choices and living standards with administrative tax records using exact matching on individual identification code. This project has been developed for year 2010 but it is being updated regularly and the first report has been published as EUROMOD Working Paper 15/14.

A recent project has focused on providing an analysis of pros and cons of alternative datasets for tax-benefit microsimulation for Italy using a consistent net-to-gross model. Its main findings have been described in a paper published in 2013 in a special issue of the International Journal of Microsimulation dedicated to EUROMOD.

Currently, TREMOD, a EUROMOD spin-off model, is officially used by Irvapp for advising local policy makers of Trento, providing ex-ante evaluation of the distributional effects of local tax-benefit policies.

Italy is one of the EU countries where microsimulation modelling activity has been particularly intense in recent decades and now it counts a dozen of different tax-benefit models. Among various research centres, the Ministry of Finance and the National Tax Institute also have their own model, which is the main reason why EUROMOD has not been extensively used by policy makers. However, things are changing – though slowly – because EUROMOD is gaining credibility within the country due to its regular updates, it being free-of-charge and the transparency of coding.
Taking the European View: a selection of new research and analysis using EUROMOD is now available to download

It is 10 years since EUROMOD made its home in ISER. In that time it has been transformed into a widely used and respected tool for comparative research and analysis on the effects of fiscal and social policies and policy reforms

Now available to download, this publication celebrates this achievement by showcasing some recent findings from work by ISER researchers using EUROMOD and by explaining its unique position as a resource for scientific research and evidence-based policy making.

According to the Director of EUROMOD, Holly Sutherland, there are two elements that make this model one of the most widely used microsimulation models in the world. First, it covers many countries in a comparable and consistent manner. Second, it is made available generally for not-for-profit use and is not private to its developers, which is usually the case with microsimulation models. This is particularly important in countries where there are no other models, and in some it has been adopted for official government use. It is also relevant in the UK where, even though there are a number of tax-benefit models, EUROMOD is the only regularly maintained model that is generally accessible.

Over the last 10 years the use of EUROMOD as a tool for academic research that is published in well-respected journals has grown enormously. However, perhaps the most dramatic transformation over this period has been the increasing acceptance and recognition of EUROMOD as a tool for policy analysis by international organisations, including the European Commission, the IMF, the World Bank, the OECD and UNICEF.

In this publication, examples of analysis for single countries are provided for the UK on the effect of the new Universal Credit on single parent incentives to work and for Greece on the effect of the crisis on poverty and the subsequent social policy response. Examples of multi-country analysis include, first, a comparison of the effects of policy changes on income poverty and inequality over the period 2001-11 for seven countries, disentangling the policy effect from other changes happening in this period. The second piece of analysis puts the performance of the UK tax-benefit system in reducing child poverty in comparative European perspective. The third comparison focuses on the financial incentives to work more, and considers the relationship between such work incentives and the reduction in income inequality, given the tax-benefit systems and labour market situation in each of the EU-27 countries.
EUROMOD presence in recent conferences

A selection of papers using EUROMOD that have been recently presented in scientific conferences

- 33rd General Conference of the International Association for Research in Income and Wealth (IARIW)
  24-30 August 2014, Rotterdam, The Netherlands
  • Nowcasting the Income Distribution in Europe (by Chrysa Leventi, Jekaterina Navicke, Olga Rastrigina and Holly Sutherland)

- 12th Annual ESPAnet Conference: ‘Beyond the Crisis in Europe - New Opportunities for reconciling sustainability, equality and economic robustness’
  4-6 September 2014, Oslo, Norway
  • Child benefit reforms and principles of redistribution: Empirical results from a set of alternative scenarios for Belgium (by Tine Hufkens, Dieter Vandelannoote, Wim Van Lancker and Gerlinde Verbist)
  • Child poverty and child related policies: A comparison of Romania and Czech Republic (by Silvia Avram, Eva Militaru, Silvia Cojanu and Cristina Stroe)

- 26th Annual Conference of the European Association of Labour Economists (EALE)
  18-20 September 2014, Ljubljana, Slovenia
  • The Redistributive and Stabilising Effects of an EMU Unemployment Benefit Scheme under Different Unemployment Scenarios (by Holguer Xavier Jara Tamayo, Holly Sutherland and Alberto Tumino)
  • Indexation matters: the distributional impact of fiscal policy changes in cross-national perspective (by Alari Paulus, Holly Sutherland and Iva Tasseva)
  • From Housewives to Independent Earners: Can the Tax System Help Italian Women to Work? The Joint Decision of Labour Supply and Childcare under Costs and Availability Constraints (by Francesco Figari and Edlira Narazani)

- 2014 International Conference on Comparative EU Statistics on Income and Living Conditions
  16-17 October 2014, Lisbon, Portugal
  • Nowcasting risk of poverty and low work intensity in Europe (by Olga Rastrigina, Chrysa Leventi and Holly Sutherland)
  • Naughty noughties in the UK: decomposing income changes in the 2000s (by Iva Tasseva)
  • Equity vs Efficiency? 20 years of tax benefit in Belgium (by Sergio Perelman, Dieter Vandelannoote, Toon Vanheukelom and Gerlinde Verbist)
  • The distributional impact of austerity and the recession in Southern Europe (by Manos Matsaganis and Chrysa Leventi)
  • The joint decision of labour supply and childcare in Italy under costs and availability constraints (by Francesco Figari and Edlira Narazani).

Moreover, the Director of EUROMOD, Holly Sutherland, delivered the first keynote speech of the IMA conference on ‘Microsimulation in, of and for the European Union’.

Don’t forget to let us know of your conference presentations using EUROMOD!
Working papers

- TREMOD: A microsimulation model for the Province of Trento (Italy) EUROMOD Working Paper Series: EM15/14
Authors
- Davide Azzolini
- Martina Bazzoli
- Silvia De Poli
- Carlo Fiorio
- Samuele Poy

Publication date 11 July 2014
Abstract This paper presents the main characteristics of TREMOD, a tax-benefit microsimulation model for the Italian province of Trento (Italy). TREMOD is based upon the EUROMOD platform microsimulation model, and its purpose is to inform local tax and welfare policies. TREMOD is a flexible tool that allows simulation of the effects of different types of public policies on a plurality of outcomes such as, for example, individuals’ and households’ income and well-being. The main strength of TREMOD is the high quality of the data used for its construction. The input database has been obtained by matching survey data (derived from a local representative survey on households’ life conditions, Indagine sulle condizioni di vita delle famiglie trentine, ICFT) with administrative data on individual income tax returns. This aspect is one of the main strengths of TREMOD compared with other experiences in microsimulation modelling. As we show in this paper, the combination of survey and administrative data ensures good precision in the simulations and will allow for the integration of other administrative data sources including pension and labour market records. The first version of TREMOD is a ‘static’ microsimulation model.

Authors
- André Decoster
- Dieter Vandelannoote
- Toon Vanheukelom
- Gerlinde Verbist

Publication date 28 August 2014
Abstract Income aggregates and poverty and inequality measures tend to show important differences when calculated either with disposable income reported in SILC data, or with the same income concept calculated on the basis of the microsimulation model EUROMOD, which starts from gross incomes in SILC. This is one of the reasons why gross income data in SILC are often regarded with some suspicion. In this paper we try to shed light on this question by: comparing gross incomes in SILC with gross incomes reported on the fiscal form for the same individuals; and testing a re-calibration of gross incomes proposed by Immervoll and O’Donoghue (2001), to make them consistent with reported net incomes. We find that on average fiscally reported gross incomes exceed gross incomes in the survey. It is not clear however, whether the method of constructing updated gross incomes through an iterative method using the observed net incomes and withholding tax rules, is a genuine improvement upon the reported gross income distribution.

- Research note: A feasible way to implement a Citizen’s Income EUROMOD Working Paper Series: EM17/14
Author
- Malcolm Torry

Publication date 18 September 2014
Abstract Citizen’s Income – an unconditional and nonwithdrawable income for every individual – would offer many advantages, but transition from the UK’s current largely means-tested benefits system to one based on a Citizen’s Income might generate initial losses for some low-income households, and this could make a Citizen’s Income politically unattractive. This paper employs EUROMOD to study the initial losses that a variety of different Citizen’s Income schemes would generate, and finds that in those schemes in which a Citizen’s Income replaces most means-tested benefits, substantial household losses would occur, both generally and for households in the lowest disposable income decile, whereas where means-tested benefits are not abolished, but instead the Citizen’s Income reduces means-tested benefits in the same way that other existing income does, almost no households in the lowest disposable income decile suffer initial losses, and initial losses generally are at a manageable level. This means that there is at least one method for implementing a Citizen’s Income that could be politically attractive.

- Baseline results from the EU27 EUROMOD (2009-2013) EUROMOD Working Paper Series: EM18/14
Authors
- Holguer Xavier Jara Tamayo
- Chrysa Leventi

Publication date 17 October 2014
Abstract This paper presents baseline results from the latest version of EUROMOD (version G2.1), the tax-benefit microsimulation model for the EU. First, we briefly report the process of updating EUROMOD. We then present indicators for income inequality and risk of poverty using EUROMOD and discuss the main reasons for differences between these and EU-SILC based indicators. We further compare EUROMOD indicators across countries and over time between 2009 and 2013. Finally, we provide estimates of marginal effective tax rates (METR) for all 27 EU countries in order to explore the effect of tax and benefit systems on work incentives at the intensive margin. Throughout we highlight both the potential of EUROMOD as a tool for policy analysis and the caveats that should be borne in mind when using it and interpreting results. This paper updates the work reported in EUROMOD Working Paper EM13/2013.

Winter school on cross-country microsimulation
ISER will be holding a winter school on cross-national microsimulation using EUROMOD on 18-20 February 2015. The winter school is supported by InGRID, a large multinational research infrastructure network of which ISER is a member. The full call for applications is here and the deadline is Friday 12 December 2014.

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!
EUROMOD: introducing the team

In this edition of EUROMOD NEWS, Dr Holguer Xavier Jara Tamayo, Senior Research Officer at ISER, describes his work

What is your background? I was born in Quito, Ecuador. I moved to study in Europe after high school. I obtained my undergraduate degree in Economics and a complementary degree in Social and Economic Ethics at the University of Louvain, in Belgium. Then, I moved to the University of Leuven, where I obtained my Masters and PhD in Economics. During my PhD I spent three months as an ECASS visitor at ISER, it was at that point that I learnt about microsimulation as a tool for the study of the effect of policy reforms on income inequality and work incentives. I joined ISER in 2012 as a Senior Research Officer.

What are your research interests? My main research interests are in the field of labour and public economics. In particular, I am interested in the effect of tax-benefit systems on work incentives. As part of my PhD I also studied the effect of non-monetary job attributes on labour supply. Additionally, I am also interested in comparing preference information obtained from traditional choice models to that of subjective wellbeing measures and accounting for different life dimensions in the evaluation of individuals’ wellbeing.

Do you have any special responsibilities? I am a member of the EUROMOD Communication Committee.

Which countries do you work on? I am currently responsible for Ireland, Slovakia and Sweden. My research involves cross-country comparative analysis.

What are you working on at the moment? My current research with EUROMOD is focused on the evaluation of the redistributive and stabilizing effects of an unemployment benefit scheme at the European Monetary Union level. This research topic has recently gained increasing interest at the academic level, showing the need to assess the impact of this type of supra-national policies and to contribute to the discussion of the role of such options at the political level. Another project I am currently working on involves evaluating the link between in-work poverty and work incentives at the EU-level. For the particular group of the working poor it is important to assess whether tax and benefit systems embed any type of poverty traps and consider potential solutions.

What do you enjoy most about working with EUROMOD? As a researcher, I think it is important to contribute to understanding how different policy reforms have affected or could affect income inequality and people’s behaviour. In this sense, microsimulation and in particular EUROMOD, proves to be a strong tool as it enables to analyse the effects of tax-benefit systems in a harmonised way across countries in the EU. At a personal level, the international team of researchers at ISER is an inspiring, supportive and stimulating group of people to work with and to share my experience of living in the UK.

Would you like to share any recent highlights? During the last year I have been able to present my work on the effect of an EMU unemployment insurance scheme on income support in many international conferences. It has been an enriching experience to discuss this work and realise the importance and relevance of this type of analysis in the context of policy evaluation. I was also involved in the organization of the workshop on ‘Understanding changes in income inequality in the austerity period’, 15-16 September, in Colchester. The workshop highlighted the increasing interest in studying income inequality at the academic level.