

EUROMOD NEWS

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.euromod.ac.uk



The event took place in the beautiful surrounding of Sala Napoleonica, University of Milan

EUROMOD holds its annual workshop and project meeting in Milan

The EUROMOD Workshop and Annual Project Meeting took place in Milan on the 25-27 September 2019

The event was co-organised by the University of Milan and the Joint Research Centre (JRC) of the European Commission.

During the first day of the workshop, experts from both academic and policy institutions shared their experiences on the use of administrative data for policy analysis both through presentations and fruitful discussions at a roundtable session. In particular, the Bank of Spain and the Italian Parliamentary

Budgetary Office presented their experiences in using administrative data for fiscal policy evaluation; two presentations assessed specific uses of admin data for the evaluation of tax evasion in Italy and for a better assessment of the redistributive effect of the welfare state in Germany; while experiences in setting up the infrastructures for the analysis of administrative data were shared for Estonia and France. [Continued on next page](#)



Speakers at the event discussed different national experiences of using administrative data

Continued from previous page At the roundtable, experts from the European Commission – DG EUROSTAT, the Hellenic Council of Economic Advisors, Institut des Politiques Publiques and the Italian Ministry of Economy and Finance discussed different national experiences of using administrative data and possible barriers to using or getting access to administrative data.

The presentations and the roundtable highlighted that administrative data are a powerful and increasingly important tool both for academic research and policy analysis although confidentiality issues create access restrictions.

In the second day, participants learned about new developments in microsimulation modelling with presentations on frontier

research in this area. The treated topics included the extension of EUROMOD to work with UK longitudinal data; dynamic and spatial microsimulation; environmental policy analysis; the combination of tax-benefit simulations with general equilibrium models.

All the presentations are available via the JRC website at <https://ec.europa.eu/jrc/en/science-update/euromod-management-track-move-jrc-2020>.

As has been the case in recent years, the workshop was followed immediately by the EUROMOD annual project meeting where the key piece of news was that the transfer of the project from Essex to the Commission continues according to schedule, with the Commission set to assume full management of the update and maintenance of EUROMOD from 2021.

Women in Statistics: microsimulation workshop

The Statistical Week is the main academic event for Data Scientists in Germany. This year's programme included a microsimulation workshop for women by women. The workshop was funded by the German Research Foundation (DFG) and is part of the commitment to equal opportunity of women and men in the German research system.

The hosts Prof. Petra Stein, Monika Obersneider and Kristina Neufang introduced microsimulation modelling to the students and presented the multi-sectoral regional model 'MikroSim' funded by the DFG.

Sabine Zinn's lecture illustrated how synthetic life-courses can be simulated using continuous-time microsimulation. She introduced the MicSim package of the open source software environment R and illustrated its functionality based on two examples: living arrangement pathways and changes in marital status, educational attainment and fertility status.

The main part of the workshop was dedicated to the EU wide tax-benefit microsimulation model EUROMOD. Katrin Gasior provided an introduction to (static) tax-benefit microsimulation models and their use for single country as well as comparative research. The first part focused on the EUROMOD software, its user interface and features. Microsimulation models are often presented as a black box. EUROMOD, however, is an open access model and the workshop offered the opportunity to look inside. Participants had the chance to use the model in small hands-on exercises, a unique chance to gather first-hand experience in microsimulation modelling. The second part of the workshop presented research applications that use the model.

First public release of UKMOD

The end of September 2019 saw the first public release of UKMOD – an extended and enhanced version of the UK component of EUROMOD.

UKMOD version A1.0+ includes the very latest tax-benefit policies and can also model future policy systems based on announced reforms and income projections. As part of the model's enhancement, Universal Credit is now fully implemented, including an option for modelling non take-up. The UK model fully accounts for the devolved nature of some policies, and new options allow the user to run the model just on data from Scotland or Wales (pooling three years of FRS to boost the sample size), as well as the UK as a whole.

The model is available via <https://www.euromod.ac.uk/ukmod/data-request>.

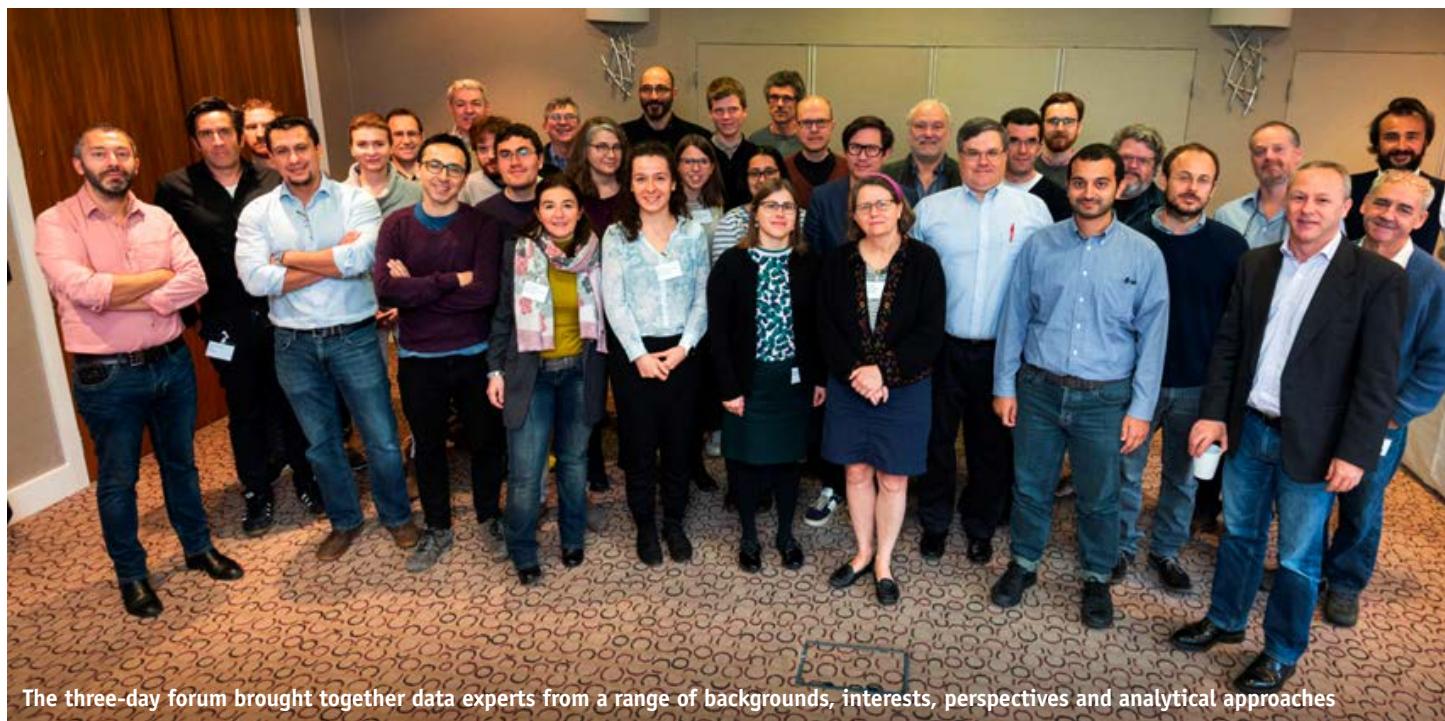
Early indicators of use are encouraging with around 50 access requests having been made, with users representing a range of institutions across the government, academic and third sectors.

The release of version A1.1+ is planned for February or March 2020 – partly dependent on political events! – and will include any new policy announcements and updated incomes. In future years, this 'New Year' release will also update the model based on the Autumn Budget, which was postponed in 2019.

Potential users can find out more about the project at <https://www.euromod.ac.uk/uk>.

About the project: via generous funding from the Nuffield Foundation, ISER is adapting, extending and enhancing the UK component of the EU microsimulation model, EUROMOD, in order to meet the demand for tax-benefit modelling capacity in the UK and to promote its use more widely as a way to improve the evidence base to better inform current policy debates.





The three-day forum brought together data experts from a range of backgrounds, interests, perspectives and analytical approaches

Use of longitudinal and administrative microdata for distributional analyses

A data forum focusing on the use of longitudinal and administrative microdata for distributional analysis, with invited expert speakers from around the world, was held at the University of Essex on 28-30 October 2019

The event was organised by the Institute for Social and Economic Research (ISER) at the University of Essex and supported by the H2020 InGRID-2 project and the UK's Economic and Social Research Council, who fund the longitudinal study *Understanding Society*, managed by ISER.

The three-day forum brought together around 50 data experts from a range of backgrounds, interests, perspectives and analytical

approaches – including lifecourse analysis and microsimulation modelling – and covered issues such as data quality, accessibility, linkability and coverage. Leading academics, as well as participants from the World Bank and the UK's Department for Work and Pensions, came from Canada, Australia, New Zealand, South Africa and Latin America, as well as Europe.

Over the three days, there were 12 sessions, 25 presentations and two keynote addresses,

held pre-dinner. The full programme, with links to presenters and presentations, can be found at <http://www.inclusivegrowth.eu/data-forums/data-forum-uessex-28-30-october-2019>.

The event concluded with a drinks reception – timed also to coincide with ISER's 30th anniversary celebrations – hosted by University of Essex Pro-Vice-Chancellor Professor Christine Raines.

Where they turned up

Since the last edition of EUROMOD NEWS, newly-published journal articles using EUROMOD include:

Penne, T., T. Hufkens, T. Goedemé and B. Storms (2019) To what extent do welfare states compensate for the cost of children? The joint impact of taxes, benefits and public goods and services, *Journal of European Social Policy* <https://doi.org/10.1177/0958928719868458>

Hufkens, T., F. Figari, D. Vandelannoote and G. Verbist (2019) Investing in subsidized childcare to reduce poverty, *Journal of European Social Policy* <https://doi.org/10.1177/0958928719868448>

Penne, T., I. Cornelis and B. Storms (2019) All we need is... Reference Budgets as an EU Policy Indicator to Assess the Adequacy of Minimum Income Protection, *Social Indicators Research* <https://doi.org/10.1007/s11205-019-02181-1>

Urban, I., M. Čok and M. Verbič (2019) The burden of labour taxation in Croatia, Slovenia and Slovakia in the period 2011-2017, *Economic Research-Ekonomska Istraživanja* 32:1 <https://doi.org/10.1080/1331677X.2019.1638291>

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

Looking forward to the release of EUROMOD 12.0+

The EUROMOD developers across ISER, the JRC and the national teams are currently busy putting the final touches to the forthcoming (January 2020) public release of EUROMOD (version 12.0+).

To request your copy, check out the news item that will appear at <https://www.euromod.ac.uk/> after mid-January.

In the meantime, here's what's new in EUROMOD 12.0+:

Policies

- **New policy system: 2019**

New modelled policies for EU28: parental benefits and revision of previous systems and data

Data

- **New input data: 2017**

Add-ons (new!)

- **Tax Compliance Adjustments (TCA)**

Allows the user to adjust results considering underreporting and tax evasion

- **Labour Market Adjustments (LMA)**

Allows the user to adjust labour market characteristics (transitions) and incomes

Applications

- **Statistics Presenter**

Updated version with custom HTML pages

- **Household Hypothetical Tool (HHoT)**

A new Statistics Wizard for the estimation of budget constraints

Modelling

- **More flexible extensions (policy switches)**

Allows the user to switch on/off not only policies but also parameters with an improved visualisation

Software

- **New software version 3.2.2**

Compatible with EUROMOD 12.0+ (included with the model)

- **New features**

DBYearVar, Conditional Constants and Change XML (see in Help)

Other and related documentation

- **New documentation folder**

New manuals for HHoT and add-ons, included with the model

- **Updated Country Reports (2016-2019)**

- **Updated Web-statistics and Baseline Report (2016-2019)**



EUROMOD training and visit opportunities in 2020

The next opportunity to gain hands-on training in the use of EUROMOD is via the Essex Spring School, taking place in Colchester from 25 to 27 March 2020

The course – by a variety of lectures, live demonstrations of the model and hands-on exercises – will deal with the basics of tax-benefit microsimulation and cover the logic and structure behind EUROMOD, working with EUROMOD's user interface, input data, EUROMOD 'language' and using existing documentation.

If you are interested in attending or would like more information, please complete the application form at <https://www.euromod.ac.uk/events/2019/12/03/euromod-training-course-25-27-march-2020>.

The closing date for applications is 13 January 2020.

There is also the opportunity to apply for a 5-15 day research visit to use EUROMOD as part of defined project at either Essex or Antwerp as part of the InGRID-2 project: <http://www.inclusivegrowth.eu/visiting-grants/eight-call-for-ingrid-2-visiting-grants-8>. There are further details about the scheme at the link.



EUROMOD: introducing the team

In this edition of *EUROMOD NEWS*, Kakia Chatsiou, EUROMOD Senior Research Officer, describes her work

What is your background?

A computational linguist by training (PhD Essex, 2010 – Natural Language Processing; MA, Essex, 2004), I initially worked in non-academic roles as a business data analyst from 2010 to 2017 (UK Data Archive; SOAS; Administrative Data Research Network), where I was responsible for overseeing activities related to information systems, secure data handling and data privacy. I have over 10 years' experience working in a professional research support and analytics setting and have worked in some of UK's largest repositories of big and administrative data.

Since 2017, I have been a post-doctoral researcher working on policy evaluation and the study of political discourse using computational social science methods (Survival Analysis, Machine Learning, Natural Language Processing, Deep learning). My research has focused on community resilience, disaster and emergency management as well as capacity building in evaluation and the use of data for effective policy making.

What are your research interests?

I am very much interested in understanding how communities and individuals within them can become more resilient in the face of adversity and how state policies can facilitate that. 'Resilience' is a notoriously difficult concept to define and measure, a truly interdisciplinary feat! I am very excited to have joined the EUROMOD team, as it offers a great opportunity to model elements of resilience (such as economic insecurity and the effect of health outcomes) as manifested in the tax and benefit system in the UK.

I am particularly interested in the ways academic research through data and evidence-based modelling can have a real impact to our society, fuelling positive changes for vulnerable communities and



how challenges around ethics, privacy and data confidentiality can be bridged to maximise the potential of such insights for everyone.

Which countries do you work on?

I am the developer for Luxembourg and Romania, so I am very glad to work with these national teams and learn about their tax-benefit systems. I am also part of the national team (and EUROMOD developer) for the UK.

Since I only joined the EUROMOD team in July 2019, I have yet to experience the full lifecycle of the EUROMOD release, so really looking forward to the year ahead as I will be doing more work with the input data using the EU-SILC and FRS data.

'I am particularly interested in the ways academic research through data and evidence-based modelling can have a real impact to our society, fuelling positive changes for vulnerable communities and how challenges around ethics, privacy and data confidentiality can be bridged to maximise the potential of such insights for everyone'

Do you have any special responsibilities?

In addition to my country development responsibilities and being part of the UK EUROMOD national team, I have also been contributing to the Hypothetical Household Tool Add-on, expanding the documentation available and testing new features.

From January 2020, I will be responsible for coordinating the EUROMOD face-to-face training delivered at Essex. I will also be leading an internal project to create a Massive Open Online Course (MOOC) on EUROMOD at a beginner and intermediate level to help address increased demand for our training courses from our users in Europe and around the world.

What are you working on at the moment?

I am currently working on a paper combining my research interests on community resilience and the EUROMOD static microsimulation tax and benefit models available for the UK. In this paper, I will be looking at narratives of inequality and poverty in UK tax-benefit legislative policy texts from the JRC-Acquis corpus using Deep Learning and looking to see if discourse and stated intentions follow policy effects as they manifest in microsimulations using EUROMOD systems for the UK and the Family Resources Survey (FRS) dataset. It is still very much in draft form, but I am aiming to submit it to an appropriate academic journal by next summer in addition to submitting it as a EUROMOD working paper.

What do you enjoy most about working with EUROMOD?

As mentioned above, I am particularly interested in the ways data and evidence-based modelling can instigate positive changes for everyone and for vulnerable communities in particular – and EUROMOD is a prime example of that! Despite our assumptions and related limitations of our models and our data, simulation offers a unique opportunity for a 'sneak peek' preview into how our society works and a fantastic opportunity for researchers to try different 'what if' scenarios before a reform is implemented.

Would you like to share any recent highlights?

Look out for the extraordinary release of the UK models this spring as part of the UKMOD, following the latest UK government budget announcement. In the UK national team we have been working on this to ensure we offer updates for our users interested in working with the UK tax and benefit policy systems.

EUROMOD-related research presented at conferences

2019 International Society for Quality of Life Studies Annual Conference, 5-7 September, Granada

- Xavier Jara presented 'Putting individual measures of well-being to use for ex-ante policy evaluation'

ESPA.net 2019, 5-7 September, Stockholm

- Katrin Gasior presented 'Belonging, entitlement and inclusion: the income situation of EU migrants and the mediating role of European tax-benefit systems'

2019 Human Development and Capability Association Annual Conference, 9 September, London

- Xavier Jara presented 'Putting individual measures of well-being to use for ex-ante policy evaluation'

Microsimulation Workshop: Women in Statistics, 9 September 2019, Trier

- See article in this newsletter

Annual EUROMOD workshop, 25-26 September 2019, Milan

- See article, with link to event, in this newsletter

Public Sector Economics 2019: Wealth and property taxation: where do we stand?, 24 October 2019, Zagreb

- Panos Tsakloglou presented 'The Distributional Impact of Property Taxation in Greece' (co-authors Eirini Andriopoulou, Eleni Kanavitsa and Chrysa Leventi)
- Anna Pluta presented 'Shifting Tax Burden from Labour to Property: The Case of Latvia' (co-author Anna Zasova)

Association of Southern European Economic Theorists (ASSET2019), 26 October 2019, Athens

- Panos Tsakloglou presented 'Distributional Changes in Turbulent Times: Greece 2007-2016' (co-authors Eirini Andriopoulou and Eleni Kanavitsa)

Forum on Longitudinal and administrative data for distributional analyses, 28-30 October 2019, Colchester

- See article, with link to event, in this newsletter

EUROMOD workshop, 21-22 November 2019, Valencia

- Teresa Savall presented 'Public policies effects on gender gap across Europe' (co-authors Amadeo Fuenmayor and Rafael Granell)
- Diego Collado presented 'The anti-poverty marginal benefit of public funds'
- Olga Cantó presented 'Assessing the distributive impact of different child benefit schemes in Spain'
- Chrysa Leventi presented 'Using EUROMOD with administrative data: the case of Greece'
- Nuria Badenes presented 'What effects does the tax-benefit system generate in the different autonomous communities in Spain' (co-authors María Navas and Noemí Villazán)
- Amadeo Fuenmayor presented 'Negative income tax in Spain and labour responses' (co-authors Rafael Granell, Teresa Savall and Diego Muñoz)

EUROMOD working paper series

Changing Nordic model? A policy analysis

EUROMOD Working Paper Series EM15/19

Author Heikki Palviainen

Publication date 14 September 2019

Abstract Based on simulated counterfactual analyses, this paper studies the long-term evolution of key policy outcomes associated with the Nordic model. The results show that Finland had the most redistributive policy changes in the studied time periods. The Danish flexicurity model involves high benefit levels, and the participation tax rates were the highest. The Swedish work-line policy increased the risk of poverty by 1.0 percentage point and the Gini coefficient by 0.4. In Sweden, the behavioural effects did not fully offset the negative static effects on the risk-of-poverty rate and inequality. From a policy perspective, the results indicate that the Nordic model is resilient. In Sweden, a significant increase in the risk of poverty implies that there are other factors, such as immigration, that challenge the Nordic model.

The Changing Education Distribution and Income Inequality in Great Britain

EUROMOD Working Paper Series EM16/19

Author Iva Valentinova Tasseva

Publication date 15 September 2019

Abstract Over the past years, the number

of university graduates increased at an unprecedented rate in Great Britain. We analyse how this higher education (HE) expansion affected inequality in household net incomes in the 2000s. We show that, all else being equal, education composition changes led to higher living standards mostly through higher wages. As HE expansion benefited households from the middle and top of the distribution more than the bottom, income inequality increased. Despite the increasing share of high-educated workers, we find no evidence of a 'compression' effect on inequality, as the HE wage premium remained broadly unchanged.

Homeownership Investment and Tax Neutrality: a joint assessment of income and property taxes in Europe

EUROMOD Working Paper Series EM17/10

Authors Francesco Figari, Gerlinde Verbist and Francesca Zantomio

Publication date 16 September 2019

Abstract Western countries' income tax systems exempt the return from investing in owner-occupied housing. Returns from other investments are instead taxed, thus distorting households' portfolio choices, although it is argued that housing property taxation might act as a counterbalance. Based on data drawn

from the Statistics of Income and Living Conditions and the UK Family Resources Survey, and building on tax-benefit model EUROMOD, we provide novel evidence on the interplay of income and property taxation in budgetary, efficiency and equity terms in eight European countries. Results reveal that, even accounting for recurrent housing property taxation, a sizeable 'homeownership bias' i.e. a lighter average and marginal taxation for homeownership investment, is embedded in current tax systems, and displays heterogeneous distributional profiles across different countries. Housing property taxation represents only a partial correction towards neutrality.

The contribution of proportional taxes and tax-free cash benefits to income redistribution over the period 2005-2018: Evidence from Italy

EUROMOD Working Paper Series EM18/19

Author Stefano Boscolo

Publication date 14 November 2019

Abstract Over the last two decades a growing interest in understanding what determines the redistributive role of tax-benefit systems has emerged worldwide. In the case of Italy, previous analyses were mainly focused on

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quantifying the contribution of marginal tax rates, deductions and tax credits to the redistributive capacity of personal income tax (PIT), while neglecting the effect on income redistribution of proportional taxes and income sources exempt from taxation such as tax-free cash benefits. This paper aims to fill this gap by applying two alternative Gini-based decomposition methodologies (Onrubia et al., 2014; Urban, 2014) to the redistributive effects of the Italian tax-benefit system over the period 2005-2018. The contribution of each tax-benefit instrument is quantified for several scenarios which diverge from each other in that they are representative of different degrees of extension of the tax-benefit system under examination.

Work incentives at the extensive and intensive margin in Europe: the role of taxes, benefits and population characteristics

EUROMOD Working Paper Series EM19/19

Authors Holguer Xavier Jara Tamayo, Katrin Gasior and Mattia Makovec

Publication date 17 November 2019

Abstract Tax and benefit systems play an important role in determining work incentives at both, the extensive and the intensive margin of labour supply. The aim of this paper is to provide a comprehensive comparative analysis of work incentives in the EU. Our analysis makes use of microsimulation techniques and representative household surveys from all 28 EU countries to compare the distribution of short- and long-term participation tax rates and marginal effective tax rates across population subgroups. We focus on people currently in work and characterise the population facing low work incentives in each country. Our results highlight the large variation in the distribution

of work incentives across EU countries, explained not only by differences in the design of tax-benefit systems, but also by the characteristics of the labour force across countries. Unemployment insurance benefits contribute substantially to short-term participation tax rates and explain on average 20 percentage point difference between work incentives of short- vs. long-term unemployment. Our analysis further highlights the need to use microdata to study differences across countries in terms of the population subgroups facing low incentives to work with the aim to inform the policy debate on potential reforms to make work pay.

The fiscal and equity impact of social tax expenditures in the EU

EUROMOD Working Paper Series EM20/19

Authors Salvador Barrios, Flavia Coda Moscarola, Francesco Figari, Luca Gandullia and Sara Riscado

Publication date 18 November 2019

Abstract Tax expenditures are preferential tax treatments granted to specific individuals or categories of households which aim at achieving social and economic goals. They are widely used by EU Member States. However, their fiscal and equity impacts are not always clear and their effectiveness and efficiency as a policy instrument need to be carefully evaluated, especially in the present context of constrained public finances. This paper quantifies the fiscal and equity effects of social tax expenditures related to housing, education and health in 27 European countries making use of EUROMOD, the EU-wide microsimulation model. We find a variety of effects, in terms of sign and magnitude, across Member States, and within these, among types of households. Overall our findings suggest that the impact of tax expenditure on tax revenues and on income inequalities can be sizeable. The redistributive

impact of removing tax expenditures can go both directions, either on the progressive or regressive side, depending on the country and the tax expenditure considered.

The tax structure of an economy in crisis: Greece 2009-2017

EUROMOD Working Paper Series EM21/19

Authors Chrysa Leventi and Fidel Picos

Publication date 5 December 2019

Abstract The 2010 Economic Adjustment Programme initiated a period of strict international supervision with respect to tax policy in Greece. The country implemented a large-scale fiscal consolidation package, aiming to reduce its public deficit below 3% of GDP by 2016. Since the beginning of the crisis, the provisions of the 'Greek Programme' have been revised several times, and personal income tax reform has figured prominently on almost each of the revision agendas. This paper aims to provide an assessment of the effects of the four major structural reforms that took place in Greece during and in the aftermath of the economic crisis; using microsimulation techniques, we simulate the (*ceteris paribus*) first-order impact of these reforms on the distribution of incomes, the state budget and work incentives, while also trying to identify the main gainers and losers of these policy changes. Our results suggest that all reforms had a revenue-increasing rationale, with the one of 2011 being designed to have the largest fiscal gains. The latter also strengthened redistribution and achieved the highest decrease in income inequality. The 2013 reform went to the opposite direction by reducing both the redistributive strength and the progressive nature of the Greek tax system. The striking discrepancies in the ways in which different household categories have been affected by the four reforms call for a deeper investigation of the possibility of moving towards more uniform personal income tax rules.



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