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EUROMOD Scientific Report 2020

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Foreword

This report was drafted by the EUROMOD Scientific Advisory Board for the attention of the EUROMOD Steering Committee.

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ABSTRACT

All parties involved in the transfer of the EUROMOD model from the University of Essex to the European Commission during the years 2018-2020, agreed on the importance of establishing a governance structure for the model. Two bodies have been set up¹:

- The Scientific Advisory Board (SAB) provides guidance as regards to the EUROMOD technical development plans and overall scientific strategy.
- The Steering Committee (SC) is responsible for monitoring the progress of EUROMOD against the stated aims, objective and mission. The SC also maintains budgetary oversight of the model maintenance and development.

The first meeting of the SAB took place on the 25th November 2020. In accordance with the provisions of the EUROMOD governance structure, this Scientific Report summarises the state of the EUROMOD updating process, recent model developments and the recommendations issued to DG JRC and DG EUROSTAT by the EUROMOD Scientific Advisory Board

1 Introduction

The transfer of the EUROMOD microsimulation model from the University of Essex (UoE) to the JRC and EUROSTAT started at the beginning of 2018 and has been successfully completed at the end of 2020. The main features of this important and challenging endeavour have been agreed by DG EMPL, ECFIN, TAXUD, REFORM, EUROSTAT and JRC (partner DGs). These DGs recognise the relevance of EUROMOD for the Commission and its "public good" nature.

All the parties involved in the EUROMOD transfer agreed on the importance of establishing a governance structure for the model. Two bodies have been set up²:

- The Scientific Advisory Board (SAB) provides guidance as regards to the EUROMOD technical development plans and overall scientific strategy.
- The Steering Committee (SC) is responsible for monitoring the progress of EUROMOD against the stated aims, objective and mission. The SC also maintains budgetary oversight of the model maintenance and development.

The first meeting of the SAB took place on the 25th November 2020. In accordance with the provisions of the EUROMOD governance structure, this Scientific Report summarises the state of the EUROMOD updating process, recent model developments and the recommendations issued to DG JRC and DG EUROSTAT by the EUROMOD Scientific Advisory Board.

This report is organised as follows. Section 2 describes the EUROMOD transfer and the main features of the 2020 updating process. Section 3 mentions the main recent technical developments of EUROMOD and the plan for 2021. Section 4 analyses the uses of the model over the course of 2020. Section 5 lists the recommendations issued by the SAB to JRC and EUROSTAT. Conclusion follows.

2 The EUROMOD transfer and the 2020 updating process

2.1 EUROMOD transfer in brief

The transfer of EUROMOD from the University of Essex to the European Commission has been successfully completed in December 2020, in line with the original time schedule. The transfer ran over a period of 3 years in order to ensure both the stability and continuity of the model. The partner DGs and the UoE agreed that the transfer would have respected as much as possible existing practices, the organisational set-up and the overall way of working in order to minimise the risk of disruptions to the process of model update.

As a result of the transfer, JRC has recently become fully responsible for the overall coordination of the EUROMOD maintaining and developing process while EUROSTAT has assumed a leading role in the creation of the EUROMOD input datasets contributing to improvement the model. The collaboration of JRC and ESTAT with the network of EUROMOD national teams remains a key factor for the successful maintenance and update of the model.

¹ See also <https://euromod-web.jrc.ec.europa.eu/about/governance>

² See also <https://euromod-web.jrc.ec.europa.eu/about/governance>

2.2 2020 EUROMOD development and maintenance

In accordance with the planned transfer schedule, over the course of 2020, the JRC has been fully responsible for the development and maintenance of 19 country modules while shadowing the UoE on remaining 9 countries.³ The transfer process proceeded smoothly despite the COVID crisis and the implementation of numerous new and complex policies (e.g. short-term working schemes). The updated model, including 2020 policy systems and 2018 data for all EU countries and the UK, was released internally to national teams in September 2020 and to the general public in December 2020, as planned.

The transfer process has also required the acquisition by the JRC of specific hard and soft knowledge on tasks and processes that go beyond the transfer of country modules of EUROMOD. Among these:

- **Software development and maintenance.** The JRC is now acquainted with the source code of the software underlying the EUROMOD model. The JRC has also finalised the administrative steps for releasing the source code of the EUROMOD software as open source. This represents an important improvement and contributes to enhance further the transparency of the model.
- **Management of EUROMOD master version.** The JRC has become fully acquainted with the managing procedures for the Master Version of EUROMOD. The existing Version Control application has been revised and it is now used for both merging versions of the model into the master version and for the day-to-day collaboration between developers and EUROMOD national teams.
- **Access and distribution.** The JRC has acquired relevant experience with the management and the procedures governing the access to the model and to the underlying data by users. A specific area in the S-CIRCABC application of EUROSTAT has been set-up to distribute the model.
- **Management of EUROMOD extensions.** The JRC has learned how to manage the model extensions, such as the add-on for the simulation of labour market transitions used by EUROSTAT to produce the Flash estimates of Income and Poverty Indicators (LMA AddOn).⁴ JRC developers have revised the AddOn to be able to simulate complex labour market transitions and furlough schemes.
- **Dissemination.** The JRC launched in December 2020 the JRC EUROMOD website. With respect to the other dissemination activities previously conducted by the UoE, it has been decided that JRC will produce one yearly newsletter. The UoE will continue to manage the EUROMOD working paper series.
- **User support and training.** The JRC is ready to act as a first contact point for user queries. Training courses will be organised by the JRC twice per year.
- **Involvement of JRC in Eurostat EU-SILC Working Group Meeting and EU-SILC task force.** A representative of the JRC team takes part to the regular EU-SILC Working Group and the EU-SILC task force meetings. These meetings steer the development of the European Statistics on Income and Living Conditions (SILC) survey, used as source of microdata for EUROMOD.

2.3 Management of the national teams

In 2020, the JRC managed a contractual procedure for the work of the national teams of 19 countries. A similar multiannual framework procedure is being implemented for the remaining countries modules.

In terms of national teams' composition, the following changes occurred:

- The Cypriot Ministry of Labour, Welfare and Social Insurance replaced the Economic research Centre of the University of Cyprus as EUROMOD national team in spring 2020.
- The DIW, national team for Germany in the 2020 EUROMOD update, manifested its interest to leave the project as from 2021. Germany was therefore included in the ongoing framework procedure for the last group of country modules to be transferred to JRC. The IFO (Leibniz Institute for Economic Research at the University of Munich) has successfully passed the evaluation for the above contract and will act as German national team.
- At the time of writing, a contractual procedure for the role of national team for Sweden is still open.

³ The 19 country modules are: Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Malta, the Netherlands, Poland, Portugal, Spain and Slovakia. The 9 country modules are: Austria, Croatia, Greece, Lithuania, Luxembourg, Romania, Slovenia, Sweden, United Kingdom

⁴ https://ec.europa.eu/eurostat/cros/content/flash-estimates-income-and-poverty-indicators_en

2.4 EUROMOD Workshop and Annual Meeting

The JRC organised the annual project meeting and EUROMOD workshop on the 21-23 September 2020. Originally planned to take place in Prague, the events took place through video conference due to the COVID-19 pandemic.

The main actors involved in the EUROMOD development (including JRC, UoE, EUROSTAT and national teams) were present, together with representatives from policy DGs and academic experts. During the event various issues related to the model transfer were discussed, including the new data workflow proposed by EUROSTAT. New developments in EUROMOD and research from the national teams were also presented (see programmes in Annex 1).

Both the annual meeting and the EUROMOD workshop proved to be successful events. The 2021 edition of these events should take place in in Prague on invitation from the Czech national team.

3 EUROMOD technical developments over 2020 and plans for 2021

The simulation of the policy response to the COVID-19 pandemic represented an important challenge for the 2020 EUROMOD update. In particular, the simulation of short-time working schemes for employees and self-employed has required the simulation of labour market transitions to re-create in the underlying input dataset the conditions observed in 2020 labour markets.

The JRC prepared over the months of March and April a template to facilitate the work of developers and national teams and to guarantee the consistency of simulation of COVID-19 related policies across countries. As an outcome of this effort, the 2020 release of the model allows users to set-up complex labour transitions in a relatively simple way. This represents a major development in terms of model usability in light of the exceptional circumstances of 2020. This development, as well as the simulation of policy measures often adopted in record time by the Member States, has been possible thanks to the effort of the JRC/UoE and the excellent collaboration with (and reactivity of) EUROMOD national teams.

The 2020 model release also includes the following newly developed functionalities:

- Net Replacement Rate (NRR) AddOn: originally developed by the UoE, the functionality allow to move people from work into unemployment and compute indicators such us the net replacement rate.
- (Enhanced) LMA AddOn: over the course of 2020 the AddOn has been deeply revised to be able to simulate complex labour market transitions, including COVID-related reforms requiring the simulation of labour transitions into furlough schemes.
- Updated Hypothetical Household Tool (HHOT)

Over the course of 2021, JRC and EUROSTAT plan to implement two important changes in the way EUROMOD is updated and distributed.

First, EUROMOD will be released as open source. In particular, the open source licensing will apply to the model contents and to the source code of the EUROMOD software. The compiled version of the software will be excluded from the open source licensing because of the copyright requirements of one of their third-party components. The JRC will work in the coming months to overcome the issue and release this element as open source too.

Second, EUROSTAT and the JRC will implement a new data workflow that will facilitate the task of producing the EUROMOD input datasets in the future. In particular, starting from 2021, EUROSTAT will provide national teams with a new dataset, the so-called EUROMOD SILC Database (EMSD), containing all UDB-SILC variables, the variables from the National SILC (conditional upon agreement by National Statistical Offices), and EUROMOD variables already derived by EUROSTAT on the basis of UDB-SILC and/or SILC Production Database (PDB). The new procedure will be implemented for a subset of 10 country modules and extended to the rest of the country modules in time for the 2022 updating work.

4 Uses of EUROMOD over the course of 2020

4.1 Uses by the European Commission

Over the course of 2020 the EUROMOD further consolidated its role as a key tool for fiscal and social policy analysis at the European Commission. JRC analyses based on the model have been mentioned in 14 Country Report for the 2019/20 European Semester, in line with previous year and increasing from 11 in the 2017/18 round of the European Semester. The model has been also used in a number of horizontal projects with various DGs, among which the study in support to the European Commission proposal on Minimum wages, the analysis of the net fiscal impact of migration flows, the analysis of capital income and wealth taxation, the taxation of pension and the analysis of the distributional impact of green taxes. The model has proved its value also in the context of COVID-19 pandemic, with JRC conducting analyses on its impact on household income and on the budgetary impact of the short term work schemes. EUROMOD and its extensions will also be used to contribute to the impact assessment of important Commission proposals such as the revision of the energy tax directive, proposals for reduction of the gender wage gap and the forthcoming proposal on minimum income. JRC also continued providing technical assistance to Greece and agreed on providing similar assistance to Romania, Lithuania and Slovakia, thanks to its partnership with DG REFORM.

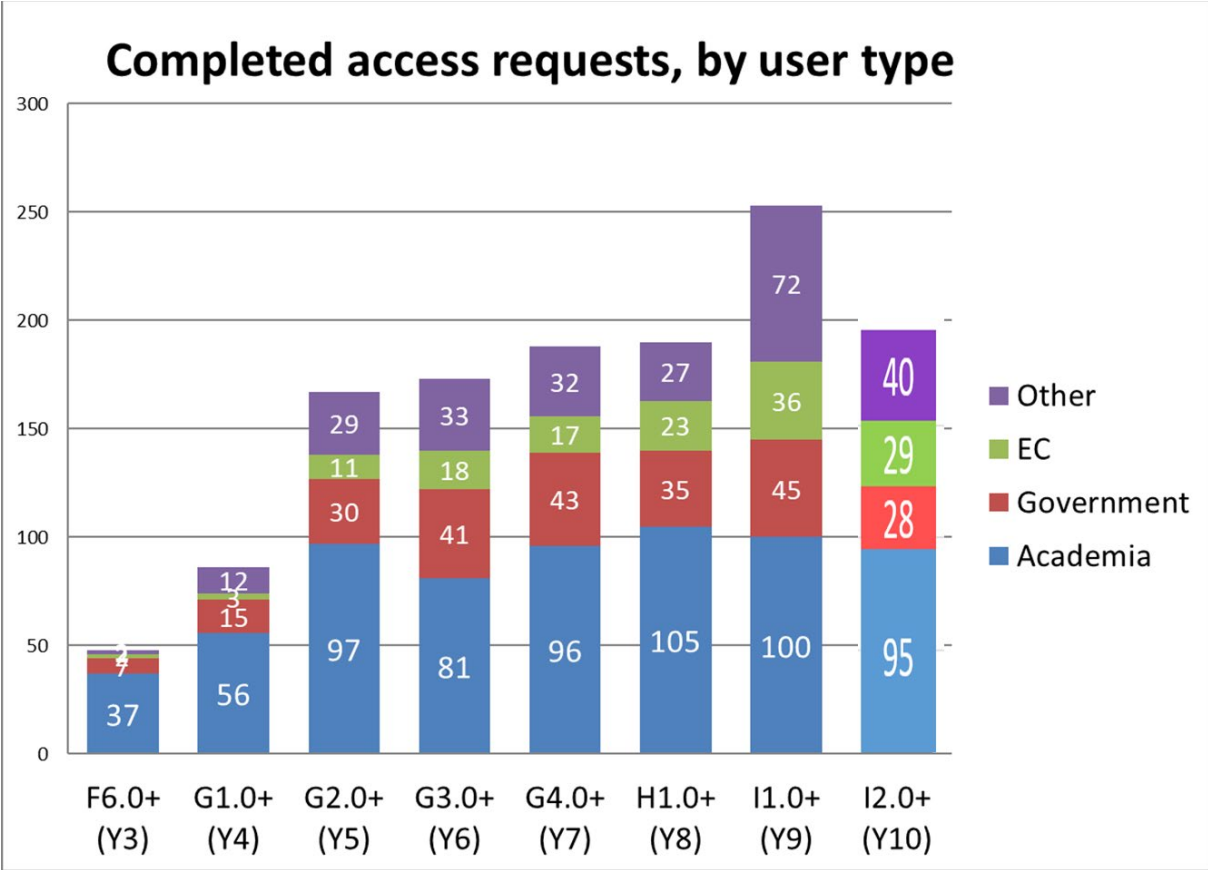
4.2 EUROMOD accesses and uses of the model

Figure 1 below shows how model access requests evolved in the last 8 years, disaggregated by sector of activity of the user. The data refers to the end of November 2020. The 2020 EUROMOD release (I2.0+) has been accessed by 192 users, in line with previous years with the exception of 2019 when 253 requests had been processed. One of the reasons for the drop can be the release of UKMOD by the UoE, a model based on EUROMOD but with a focus on the UK which has arguably lowered the appealing of the model for UK-only users.

Therefore, a reasonable target for I3.0+ will be in the region of 200 accesses.

In terms of publications, up to December 2020 the model was used in 49 research outputs, shared between journal publications and working papers. This count does not include EUROMOD Country Reports and European Semester Country Reports. The result is in line with previous years' statistics (45 in 2019, 57 in 2018, 55 in 2017).

Since April 2020 the model has been widely used in several analyses on the budgetary and redistributive effects of COVID-19 pandemic and related policies with outputs in the EM Working Papers Series and scientific journals.



Source: Kneeshaw, J., Uses of EUROMOD over the past year, presentation given at the EUROMOD Annual Meeting 2020, updated 23 November 2020.

5 Recommendations of the SAB to JRC and EUROSTAT

Following its meeting on 25th November 2020, the SAB issued the following recommendations to JRC and EUROSTAT.

Recommendation 1 – Contents of the SAB meeting. The contributions of the JRC and EUROSTAT to the next SAB meeting should have less focus on operational issues and contain more “scientific” information, focusing on the future evolution of the model and showing the applications of the model and/or of its new developments. This will allow the SAB to better contribute to the scientific development of EUROMOD.

Recommendation 2 – Contents of the model. The December public release should include all the publicly available components of the model, including old data and systems. In the future, a process of simplification might be envisaged. The SAB recommends the JRC to discuss with the SAB prior deciding to discontinue components of the model, being either data or model functionalities. Prioritisation of the different existing and potential future capabilities and characteristics of the model is closely related to the medium and longer-term scientific strategy, which is of central concern to the SAB.

Recommendation 3 – EUROMOD Open Source. The SAB welcomes the ongoing activities of the JRC and the University of Essex aimed at releasing EUROMOD as open source. The SAB recommends the JRC to continue pursuing the open source licensing of the model. JRC should also include a minimum of documentation of the open-source code.

Recommendation 4 – Communication of new tools. The SAB recommends that new tools (like the labour market tools) should be presented to national teams and the wider academic community. The objectives should be to favour dissemination of the tools with national teams, and general discussion about their scientific reliability.

Recommendation 5 – keeping up with IT challenges. The SAB would like to emphasize the need to maintain capacity for continued software development. The SAB believes that the importance of IT experts for developing the EUROMOD software should not be underestimated.

Recommendation 6 - Fostering the use of EUROMOD. The SAB recommends the JRC to explore how to foster the use of EUROMOD among Member States administrations, but also to foster a broader use of EUROMOD in the wider academic community. Ad-hoc events could be organised, with the help of the partner DGs. Events could also be organised with relevant institutions to promote the extension of EUROMOD to administrative data.

The SAB would also like to see reinforced the already fruitful collaboration between JRC and the national teams and research community.

Recommendation 7 – Training and public reports

The SAB recommends the JRC continues to provide EUROMOD training courses from 2021 onward and to make publicly available the Baseline report, the Web-statistics report and the PET report.

Recommendation 8 – EUROMOD Working paper series

The SAB recommends the JRC reminds EUROMOD users to send their research to be included in the EUROMOD WP series at the UoE.

6 Conclusions and way forward

The process of transferring the EUROMOD model from the UoE to the JRC has been a complex endeavour that has involved a significant transfer of knowledge regarding the update, maintenance and organisational setting of the model. The process recently ended according to the plans agreed with the partner DGs back in 2018. The learning strategy has proved successful and JRC developers have successfully taken full responsibility for the model update, which was in 2020 especially challenging due to the COVID crisis

In accordance to the terms of reference for the EUROMOD governance signed by all the partner DGs, the first meeting of the EURODMO Scientific Advisory Board took place in November 2020 and it will be followed by the meeting of the EUROMOD Steering Committee.

The SAB issued a list of recommendation to JRC and EUROSTAT. These will be discussed by the Steering Committee and addressed over the course of 2021.

Annexes

Annex 1: Programmes of the EUROMOD annual meeting 2020 and EUROMOD workshop 2020



EUROPEAN COMMISSION

Joint Research Centre
Directorate B – Growth and Innovation
Fiscal Policy Analysis Unit

EUROMOD Annual Meeting 2020

Final Programme

21-22 September 2020, 09.00-13.30

21 September 2020

08.45: Registration/connection

09.00-09.20: Welcome by Daniel Daco (JRC), Matteo Richiardi (ISER) and Didier Dupré (ESTAT)

09:20 – 09:40: Possible short introductions by the Policy DGs (EMPL, ECFIN, TAXUD, REFORM)

09.40-11.30: Session 1

- Overview of 2020 activities (20 min) - *Alberto Tumino, JRC*
- Uses of the model over 2020 (30 min)
 - By the JRC – *Salvador Barrios, JRC*
 - Academic uses – *Jack Kneeshaw, ISER*
- Open discussion: what has worked and not worked this year – chair *Matteo Richiardi, ISER*

11.30-12.00: Break

12.00-13.30: Session 2

- New functionalities (45 min) – *Estefania Vazquez, JRC & Kostas Manios, ISER*
- New data process (45 min) – *Albane Gourdol, ESTAT*

22 September 2020

09:00-10.30: Discussion with national teams – chair *Daniel Daco, JRC*

- Representations and regular meetings
- Advisory board
- General relationships

10.30-11.00: Break

11.00-13.00: Presentations by national teams and JRC

- The new indirect tax tool (ITT) – *Sofia Maier and Mattia Ricci, JRC*
- The LMA AddOn and Flash Estimates – *Aura Leulescu and Cristina Lopez Vilaplana, ESTAT*
- New monthly EUROMOD for Croatia based on the "monthly" EU-SILC data – *Ivica Urban, Institute for Public Finance, Croatia*
- Accounting for labour market developments in the Covid-19 era using EUROMOD's LMA AddOn: the case of Greece – *Chrysa Leventi, Ministry of Finance, Greece*

13.00-13.30: Goodbyes



EUROPEAN COMMISSION

Joint Research Centre

Directorate B – Growth and Innovation

Fiscal Policy Analysis Unit

EUROMOD Workshop 2020

Final Programme

“Tax-benefit policies in times of COVID-19”

23 September 2020

09.00: Registration/connection

09.15-09.30: Welcome by Daniel Daco (JRC)

Session 1 - Chair *Salvador Barrios, JRC*

09.30-10.00

Welfare resilience in the immediate aftermath of the COVID-19 outbreak in Italy, *Francesco Figari (University of Insubria)* and *Carlo Fiorio (University of Milan)*

10.00-10.30

The potential costs and distributional effect of Covid-19 related unemployment in Ireland, *Karina Doorley (ESRI)*

10.30-11.00

The UK policy response to COVID-19, *Matteo Richiardi* and *Iva Tasseva (ISER)*

11.00-11.30 : Break

Session 2 - Chair *Ana Agundez Garcia, JRC*

11.30-12.00

Social and distributional impact of COVID, *Reena Badiani-Magnusson (World Bank)*

12.00-12.30

COVID-19 and global perspectives on universal basic income, *Luke Martinelli (University of Bath)*

12.30-13.00

Households' income and the cushioning effect of fiscal policy measures during the Great Lockdown, *Michael Christl (JRC)*

13.00-13.15: Closing: Daniel Daco, Matteo Richiardi

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