Policy Brief / 2025

Jekaterina Navickė (Vilnius University) &
Michihito Ando (Rikkyo University)

EUROMOD – Tax-Benefit Microsimulation Model for the EU and beyond

This policy brief is part of the project "Exploring the Possibilities for Promoting Evidence-Based Social Policies on Ageing, Family, Social Inclusion, and Poverty in Japan and Lithuania." It aims to highlight the benefits of adopting microsimulation techniques for policy evaluation in Japan while showcasing the current use of EUROMOD in Lithuania. The brief begins by introducing the model, its key characteristics, and functionalities. It then presents Lithuania as a case study, demonstrating good practices in using EUROMOD for both academic research and applied policy evaluations. Finally, the document presents a selection of research projects utilizing EUROMOD across various topics and countries.

What is EUROMOD?

EUROMOD is a tax-benefit microsimulation model for the European Union, allowing researchers and policymakers to analyse the impact of taxes and benefits on household incomes, work incentives and other outcomes in a consistent and comparable manner across the EU countries. The model has been developed, maintained, and managed by the *Joint Research Centre* (JRC) of the European Commission in collaboration with Eurostat and national teams from the EU Member States.

EUROMOD is a static microsimulation model. It applies user-defined tax and benefit policy rules to harmonized microdata, calculates their effects on the household income, and outputs the results. The microdata, mainly sourced from EU-SILC, are processed according to standardized protocols. Cross-country comparability is ensured by coding the policy systems of EU countries using

a common framework based on uniform modelling conventions. The model simulates various fiscal instruments, including:

- **Income taxes**;
- **Social insurance contributions** (paid by employees, self-employed, and employers);
- **Family, housing, social assistance and other income-related benefits**;
- **Consumption taxes** (simulated for the EU countries since 2024).

EUROMOD is powered by purpose-built, open-source, user-friendly software. It can be integrated with other models, such as behavioural, labour supply/demand, macroeconomic, or environmental models. Its adaptability also allows for the development of country-specific tax-benefit models, even outside the EU, ensuring comparability in outputs. The software is used in many country-specific models around the world, including in the non-EU countries in Europe, as well as in North and South America, South Asia, and Africa.

Why EUROMOD?

EUROMOD is widely used in policy-relevant research, including within academic disciplines from public economics to comparative social policy. The key strengths of the model include:

- The only accessible multi-country tax-benefit model for the EU countries and beyond;
- Harmonised input data and policy simulations for all countries;
- Intuitive user interface and special-purpose modelling language;
- An extensive library of policies, which is continually updated and developed;
- Adaptable to other data sources, including to administrative data;
- Regular online and onsite trainings, extensive documentation and teaching materials;
- Several hundred active users from a range of institutional backgrounds.

EUROMOD can be used in many ways in different contexts. Examples include:

- Estimation of redistributive effects of actual and hypothetical tax-benefit policies;
- Estimation of budgetary effects of policy changes;
- Policy swapping analysis and designing policy reforms;
- Estimation of work incentives and labour supply effects of policies;
- Stress tests of tax-benefit systems;
- *Nowcasting* and forecasting of the income distribution, poverty and related indicators.

EUROMOD in policy assessment: the case of Lithuania

In Lithuania, EUROMOD is used not only in academic research but also in government policy analysis. The Ministry of Social Security and Labour of the Republic of Lithuania (MoSSL) as well as its Ministry of Finance (MoF) employ EUROMOD for distributional impact assessments (DIAs), ex-ante evaluations, and policy impact assessments. In collaboration with the JRC and the EUROMOD country team at Vilnius University, Lithuania's model has been customized to support detailed simulations based on both survey data (EU-SILC) and a comprehensive database created from merged administrative records. As a result, EUROMOD simulations can be run for the entire Lithuanian population or specific sub-groups.

The key analyses performed by MoSSL using EUROMOD include regular ex-ante impact assessments of proposed reforms to social benefits, pensions, social insurance contributions, and direct taxes. Evaluating the distributional impact of policy reforms has become a vital component of policy planning and implementation.

The latest distributional impact assessment for Lithuania, covering post-COVID-19 policy changes from 2021 to 2024 (Navickė & Gabnytė-Baranauskė, 2025)*, provides updated *nowcasts* of poverty and inequality indicators. These assessments help understand the effects of past reforms and compensate for delays in official Eurostat statistics.
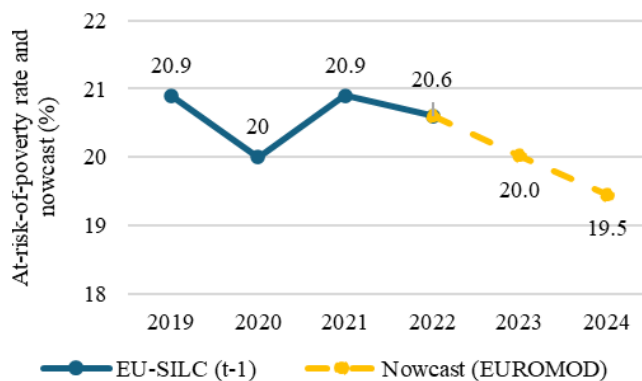

Fig. 1. Relative at-risk-of-poverty rate and nowcast, %
Source: Navickė & Gabnytė-Baranauskė (2025).
Note: estimates for the income year (t-1) are presented.

The findings indicate that, despite high inflation, policy changes to old-age pensions, social benefits, and direct taxes had a positive real effect on disposable incomes. The at-risk-of-poverty (AROP) rate and the income inequality (measured by Gini and S80/S20 indicators) consistently declined, primarily due to pension indexation and cash benefit increases rather than tax reforms. However, these measures only partially mitigated the impact of high inflation, leading to an estimated rise in absolute poverty of 2–4 percentage points between 2022 and 2024.

Other recent studies using EUROMOD address a number of important policy issues in Lithuania:

- Gabnytė-Baranauskė, V. (2024). **Social Protection Benefits Compatibility and Evaluation Criteria: The Case of Lithuania**, *Ekonomika*, *103*(2), 6–23. doi:10.15388/Ekon.2024.104.2.1.
- Immervoll, H., et al. (2023). **Who Pays for Higher Carbon Prices? Illustration for Lithuania and a Research Agenda**. *IZA Discussion Paper No*. 15868, Available at SSRN: http://dx.doi.org/10.2139/ssrn.4329811
- Cerniauskas, N., Jousten, A. (2021). **Statutory, effective, and optimal net tax schedules in Lithuania**. *IZA Journal of Labor Policy*, vol. 11, no. 1, Sciendo, https://doi.org/10.2478/izajolp-2021-0005
- Gabnytė, V., et al. (2020). **The Benefit non-take-up in the Context of Cash Social Assistance Reform in Lithuania**. *Socialinė Teorija, Empirija, Politika Ir Praktika*, *21*, 96–121. https://doi.org/10.15388/STEPP.2020.25
- Anciute, A., et al. (2020). **Labour Tax and Child Benefits Reform in Lithuania: For Better or Worse?** Economic Brief 059. October 2020. Brussels. doi: 10.2765/600512 (online)
- Barrios, S., et al. (2019). **Progressive Tax Reforms in Flat Tax Countries.** *Eastern European Economics*, *58*(2), 83–107. https://doi.org/10.1080/00128775.2019.1671201

---

* Navickė, J. and Gabnytė-Baranauskė, V. (2025) "Distributional impact assessment of policy changes to old-age pensions, social benefits and taxes in Lithuania (2021–2024)", *Lithuanian Journal of Statistics*, *63*, 2–13. doi:10.15388/LJS.2024.38779.

Other uses of EUROMOD

EUROMOD supports a diverse array of research on pressing socio-economic issues across Europe and beyond, from labour market policies and social protection to tax expenditures, inequality, and even climate vulnerability. Some of the most recent studies examined:

- labour market effects of the United Kingdom's 'two-child limit';
- challenges in building resilient social protection systems in the UNECE region;
- recent trends and new policy challenges in the sphere of tax expenditures in the EU;
- distributional impact of inflation in Pakistan;
- increased childcare to promote mothers' employment in selected EU countries;
- decompositions of inequality by income source;
- impact assessment of social assistance for education on welfare distribution;
- vulnerability to climate shocks and the role of social protection in Zambia;
- enforcing 'equal pay for equal work' in the EU;
- overcoming the inactivity trap in Spain;
- COVID-19 and inflation effects on Romanian household income dynamics;
- the direct average net fiscal impact of migration in Germany;
- crisis resilience of European welfare states;
- redistribution policies towards poor families in Europe.

The breadth and depth of this research underscores the value of microsimulation tools in informing evidence-informed policymaking. Developing a similar tool for Japan would enhance policy evaluation, enable comparative research, and strengthen the country's capacity to design resilient and equitable social policies in a rapidly changing global landscape.

Further information

More details about EUROMOD, including downloads, resources, and research databases, can be found on the official EUROMOD website (https://euromod-web.jrc.ec.europa.eu/). Information from the website was used for the policy brief. For a fuller description of the model, see also the paper EUROMOD: The European Union Tax-Benefit Microsimulation Model.