POLICY BRIEF APRIL 2014

EUROPEAN CENTRE · EUROPÄISCHES ZENTRUM · CENTRE EUROPÉEN

Social Reform Microsimulation (SORESI). A web-based citizens' tool to model the social impact of taxes and benefits in Austria

Michael Fuchs and Katrin Gasior

Michael Fuchs and *Katrin Gasior* are Researchers at the European Centre for Social Welfare Policy and Research, Vienna
http://www.euro.centre.org/fuchs
http://www.euro.centre.org/gasior

Keywords: microsimulation model, EUROMOD, web-tool, impact assessment, income distribution, poverty

SORESI is based on the EU-wide microsimulation model EUROMOD funded by the European Commission and the EUROMOD-based microsimulation model MEFISTO developed in Flanders. It is funded by the Austrian Federal Ministry of Labour, Social Affairs and Consumer Protection.

The aim of this Policy Brief is to describe the main features of the microsimulation model SORESI. It explains the background and process behind the development of this online tool and gives an example of how the model can be used to analyse and assess the impact of reforms. SORESI is a web application that offers the user the possibility to get informed about the current Austrian social benefits and tax regulations as well as to test the effects of reforms on the social situation of the Austrian population.

Starting point of SORESI is the Regulatory Impact Assessment (RIA) in the framework of the Austrian federal budget law 2013 (BHG 2013), which entered into force on 1 January 2013. It introduced a new system of outcome-oriented impact assessment for drafts of acts and regulations which also takes into account the social impact of reforms. Altogether nine different impact dimensions have to be taken into account. SORESI aims at providing impact assessment in the field of social affairs including the Europe 2020 social target group. It is a tool to simulate policy reforms in the fields of social insurance contributions, income tax and monetary benefits and to analyse their social impact. The web-based tool is not only available for policy-makers and representatives of Austrian Federal Ministries responsible for the RIA but also for the broader public, see http://soresi.bmask.gv.at

The work on the model started in 2012 and was completed with the launch of the web-based tool in July 2013. Updates to the latest policy year, relaunches and add-ons to the model will be carried out on a yearly basis.

Policy Briefs are a publication series providing a synthesis of topics of research and policy advice on which European Centre researchers have been working recently.
Series Editor is *Pieter Vanhuysse*, Deputy Director and Head of Research
vanhuysse@euro.centre.org

1 Features of SORESI

SORESI is a tax and social benefit microsimulation model that is based on the EU-wide model EUROMOD.

SORESI is based on the microsimulation model EUROMOD, an EU-wide tax and social benefits microsimulation model funded by the European Commission. It is a flexible tool that enables research on the effects of policy reforms on the distribution of income and the risk of poverty. It makes possible an analysis and assessment of the impact of policy changes on the micro-level. The change of single components of a tax/benefit system can be analysed for different population groups (such as by age, gender, income source and household type).

The model uses the latest Austrian national EU-SILC 2011 dataset for the input micro-data. EU-SILC is a representative sample of Austrian private households covering data on personal characteristics and household composition as well as on income and living conditions. Disposable income is calculated for each household in the dataset by using elements of income taken from the survey data (e.g. original income from employment) combined with components that are simulated by the model (taxes and benefits).

Simulation possibilities in SORESI include social security contributions, income tax and cash benefits, but not indirect taxes, in-kind benefits, or benefits based on prior contributions.

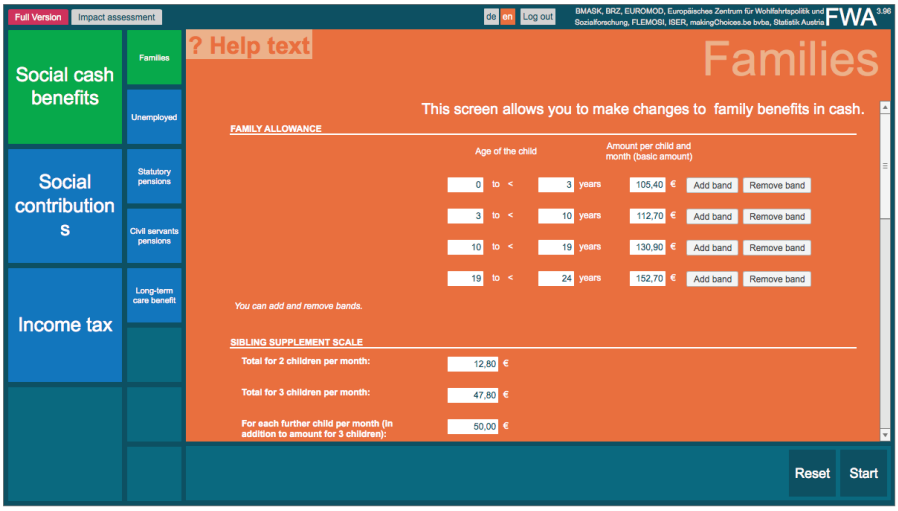
The areas of policies covered by EUROMOD and SORESI include social security contributions (both of employees and employers), income tax as well as cash benefits. Not covered are, for example, indirect taxes (e.g. value-added tax) and benefits in kind (e.g. free access to health and education services). Furthermore, the underlying micro-data usually does not include information on social insurance contribution histories. Thus, it is not possible to fully simulate social benefits that are contributory (pensions, unemployment benefits, sickness benefit, maternity benefit, etc.). Compared to EUROMOD, SORESI makes more extended use of the underlying EU-SILC data instead of simulating specific income components. With this approach, the status quo can be modelled more accurately, although this also implies that these components cannot be modified by the user of the web-tool.

SORESI measures the overnight effects of reforms.

SORESI is a static microsimulation model which allows an approach that holds most influences constant and enables one to focus on the "pure" effect of reforms of the tax/benefit system (day-after effect). In other words the question can be answered what would have happened if nothing but policy rules had changed. SORESI measures the "first-order" or "overnight" effects of policy changes, abstracting from effects of demographic, macro-economic and behavioural changes.

A user-friendly input mask enables users, including citizens, to try out the outcomes of policy reforms.

The target group of the web-model are not only civil servants. Everyone interested in the effects of policy reforms and the Austrian tax-benefit system can register and use the website. It is available in German and in English language and provides help texts to become familiar with Austrian regulations. Users may apply changes to policy regulations in three fields: social cash benefits, social insurance contributions and income tax. It is not only possible to change one parameter but to apply multiple changes and to test the effects of a reform package rather than the effects of single policy changes.



Picture 1:
Screenshot of the SORESI input mask related to family benefits

Once all changes are applied, the user has to click on the start button to run the microsimulation model in the background. The calculations are performed for the basic scenario as well as for a scenario applying all changes. The output tables of SORESI offer quantitative information on the impact of planned or hypothetical reform measures on the national poverty rate, income inequality indicators and the income situation of different population groups as well as a detailed analysis of fiscal impacts. For combined reform measures (e.g. changes in the amount of family allowances and simultaneous variations in tax rates), the cumulative effect of such a reform package can be analysed.

The basic output from the microsimulation is the micro-level change in household disposable income as a result of changes in taxes and/or social benefits. This provides a basis for the calculation of:

- impacts on measures of poverty and inequality,
- differential effects on groups of socio-economic interest, classified by individual or household characteristics,
- estimates of aggregate effects on state revenue and expenditure.

2 Applying SORESI: The 2013 reform proposal of family allowances

International comparison shows that families in Austria are well supported by the tax-benefit system. This is especially due to the high expenditure for family allowances, child tax credits (both universal transfers) and childcare benefits (at most up to the age of 3 years; de facto means-tested for the personal income of the receiving mother or father). Together, these amount to approx. 1.8% of GDP. In 2013, the Council of Ministers presented a new support model for families which focused on the modification of the family allowance benefit to increase the amount of this benefit as well as to make its administration simpler and more transparent. The idea was to increase both the basic amounts of the family allowance across age groups, and the supplements for households with two and more children and for disabled children. On the other hand, the tax credit for children, the annual school start bonus and the means-tested multiple child bonus were to be abolished (see Table 1).[1]

Table 1: Family allowance reform proposal 2013, in EUR

	Status quo	Reform proposal
Basic amount (monthly)		
Age 0-2	105.4	180
Age 3-9	112.7	180
Age 10-18	130.9	200
Age 19-23*	152.7	220
Supplements (monthly)		
2 children in the household	12.8	15
3 children in the household	47.8	75
Every additional child	50	60
Multiple child bonus**	20	-
Children with disability	138.3	150
Tax credit for children (monthly)	58.4	-
School start bonus (annual)	100	-

Note:

* If in full-time education and taxable income of the child < 10,000 EUR per year. ** From the 3rd child onwards and taxable family income < 55,000 EUR per year.

The effect of the 2013 family allowance reform proposal on poverty is not significant, while the increase in disposable equivalised net income is small. Yet this reform increases state spending by 205 million EUR.

What are the effects of the reform proposal? What output does SORESI provide to analyse the impact? The reform would cause an insignificant effect on the poverty rate and the income situation of families with children. The poverty rate decreases by just 1 percentage point for single parent households and families with 3 or more children. For households with children the disposable equivalised net income would increase by

1 The 2013 reform proposal was not implemented. A slightly different increase of the family allowance is planned for mid-2014. As not all details are announced yet, we stick to the 2013 reform proposal.

just 8 EUR per month on average. The highest increase would result for families with 3 or more children with 10 EUR per month on average (see Table 2).

Table 2: Impact of the 2013 reform proposal: Poverty risk and income situation

	Status quo	Reform proposal	Difference
At-risk-of-poverty rate[2]			
Households with children (age 0-19)	14%	14%	0 pp.
Single parent households	27%	26%	-1 pp.
Households with 3+ children	22%	21%	-1 pp.
All households	12%	12%	0 pp.
Monthly equivalised household net income[3]			
Households with children (age 0-19)	1,817 EUR	1,825 EUR	+8 EUR
Single parent households	1,412 EUR	1,419 EUR	+7 EUR
Households with 3+ children	1,651 EUR	1,661 EUR	+10 EUR
All households	2,021 EUR	2,025 EUR	+4 EUR

The total net fiscal cost of the reform would amount to 205 million EUR. Compared to the present benefit structure this would represent an extra outlay of 4.7% (see Table 3).

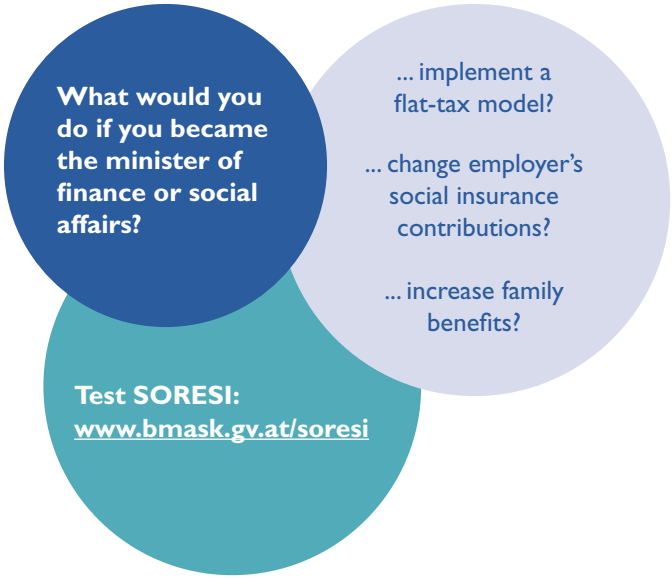
Table 3: Fiscal impact of the reform, in million EUR (simulated figures)

	2013	Reform proposal
Family allowance (incl. school start bonus)	3,077	4,543
Tax credit for children	1,261	-
Total	4,338	4,543

2 Poverty is assessed using poverty rates that indicate the share of persons with equivalised disposable income (see Footnote 3) below the poverty line. The poverty line is defined as 60% of median equivalised disposable income.

3 As a standard for household incomes, equivalised incomes are used. The disposable net income of all household members is summed up and a proportion of this sum is assigned to each household member. The proportion is computed by dividing the household sum by a factor that accounts for economies of scale, i.e. the fact that larger households are better off than smaller ones by sharing certain resources (e.g. heating). The modified OECD equivalence scale is used as divisor, which gives a weight of 1 to the first adult in the household, a weight of 0.5 to each further adult and a weight of 0.3 to each child (below 14 years of age). Example: a monthly household net income of 3,000 EUR for a couple and a child implies an equalised net income of 1,666.67 EUR (=3,000/1.8) for each member of the household.

The example of the reform proposal demonstrates how the web application can be used to analyse the impact of reforms. Readers are encouraged to try out the model themselves!



3 Conclusions and future developments of SORESI

We have illustrated the use of the SORESI model for simulating overnight effects of policy reforms by applying the model to the case of the Austrian family allowance policy reform proposal of 2013. In sum, the decrease of poverty risk and the increase in disposable income for families with children caused by the reform proposal would be rather low, especially given the extra cost of the reform for the state budget (205 million EUR). This cost would be twice as high as the foreseen additional annual investment in child care provision (100 million EUR per year). In other words, the 2013 reform proposal further reinforces the already high emphasis in Austrian family policy on direct cash benefits as opposed to in-kind benefits.

In future, SORESI will be developed and relaunched on a continuous basis. The following steps are planned:

- Nowcasting (corrections for changes in the employment and unemployment rates between the actual and the data year).
- Provision of results for model households or persons.
- Provision of output also on the individual level (appropriate for original income, social insurance contributions, income tax and "personal" cash benefits).

- Improvement of the simulation of certain benefits (e.g. unemployment benefits, minimum income benefit) depending on the data availability and data quality in EU-SILC.
- Annual update with new income data and policy years (next in 2014: EU SILC 2012 and policy year 2014).

4 Further reading

The simulated results for income tax in SORESI were validated in detail with special reference figures provided by Statistics Austria. The validation results according to gender, income groups, tax allowances and tax credits can be downloaded here:

Fuchs, Michael & Gasior, Katrin (2013): **Evaluierung der simulierten Einkommenssteuer in SORESI bzw. EUROMOD anhand von speziellen Referenzstatistiken der Statistik Austria für 2010**. Europäisches Zentrum für Wohlfahrtspolitik und Sozialforschung im Auftrag des Bundesministeriums für Arbeit, Soziales und Konsumentenschutz. http://www.euro.centre.org/data/1392113841_18692.pdf (in German)

5 Acknowledgements

The development of the Austrian microsimulation model SORESI was based on a close cooperation between the Austrian Federal Ministry of Labour, Social Affairs and Consumer Protection as the contractor and coordinator of the project and the following project partners (in alphabetical order):

- European Centre for Social Welfare Policy and Research, Austria: http://www.euro.centre.org/index.php
- Federal Computing Centre (Bundesrechenzentrum), Austria: http://www.brz.gv.at/
- Institute for Social and Economic Research (ISER), University of Essex, UK: http://www.iser.essex.ac.uk/
- Katholieke Universiteit Leuven, Belgium: http://www.kuleuven.be/kuleuven/
- makingChoices.be, Belgium: http://www.makingchoices.be/easycms/home
- Statistics Austria (Statistik Austria), Austria: http://www.statistik.at/

SORESI is based on the EU-wide microsimulation model EUROMOD, which is funded by the European Commission. It uses the national EU-SILC (European Union Statistics on Income and Living conditions) data provided by Statistics Austria as input micro-data. For the input mask the Austrian Federal Computing Centre ("Bundesrechenzentrum") adapted MEFISTO, a user-friendly EUROMOD-based microsimulation model developed in Flanders. The European Centre Vienna was responsible for the modeling of the Austrian tax/benefit-system in SORESI, the editing of the underlying EU-SILC data and the specification of links for the web-model.

About the European Centre for Social Welfare Policy and Research

The European Centre is a UN-affiliated intergovernmental organization concerned with all aspects of social welfare policy and research.

Core Functions

- An international centre of applied social science and comparative empirical research on social policy and welfare
- An information and knowledge centre providing social science-supported social policy intelligence through a think-net
- A platform initiating future-oriented public policy debates on social welfare issues within the UN-European Region

More information:
http://www.euro.centre.org

Research Focus

The European Centre provides expertise in the fields of welfare and social policy development in a broad sense – in particular in areas where multi-or interdisciplinary approaches, integrated policies and inter-sectoral action are called for.

European Centre expertise includes issues of demographic development, work and employment, incomes, poverty and social exclusion, social security, migration and social integration, human security, care, health and well-being through the provision of public goods and personal services. The focus is on the interplay of socio-economic developments with institutions, public policies, monetary transfers and in-kind benefits, population needs and the balance of rights and obligations.

European Centre Publications

- Book Series "Public Policy and Social Welfare" (Ashgate, Aldershot), in English
- Book Series "Wohlfahrtspolitik und Sozialforschung" (Campus Verlag, Frankfurt/New York), in German
- Other Book Publications, books or special reports published outside the above series, with a variety of established publishing houses and in various languages.
- "Occasional Reports", contain conference or expert meeting syntheses, reports resulting from projects, etc., in English / French / German
- "Policy Briefs", contain recent research and policy advice results
- The European Centre Newsletter, in English

European Centre
for Social Welfare
Policy and Research

Berggasse 17
A – 1090 Vienna

Tel: +43 / 1 / 319 45 05 - 0
Fax: +43 / 1 / 319 45 05 - 19
Email: ec@euro.centre.org

Geographical Domain

All governments of States that are members of the United Nations, in particular those of countries of the UN-European Region, are invited to participate in and contribute to the activities of the European Centre. This results in a geographical domain of potential Member Countries of more than 50 European nations as well as the United States of America, Canada and Israel.