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The political adequacy of quantitative impact assessment in the social field using micro-simulation models

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The political adequacy of quantitative impact assessment in the social field using micro- simulation models

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Executive Summary

The aim of this Peer Review was to examine how tax-benefit micro-simulation can best be used to inform policy development and public debate and engagement in the social field. The main focus of tax-benefit micro-simulation is to estimate the effects of a policy reform on household income across the distribution and according to household and personal characteristics.

The host country, Austria, developed its model **SORESI (social reform micro-simulation)**, inspired by the Peer Review of 2011 through which Austria learned about the web-based model developed for Flanders. Building on the same software and approach, which makes use of the country components of EUROMOD, the EU tax-benefit model, the first version of SORESI was launched in 2013. A key feature is the simplified user interface and public access via the web. A particular focus is on the impact of policy reforms on the incomes of Europe 2020 social target groups.

Eight peer countries (Belgium, Czech Republic, Ireland, Croatia, Cyprus, Latvia, the Netherlands and the UK) with widely ranging experiences of micro-simulation took part in the review. This was an opportunity not only to facilitate genuine knowledge exchange across Member States, but also to contribute to bridging the gap between academic research and policy-making. The key conclusions and lessons learned were:

- Building customisable nationally specific web interfaces for the EUROMOD simulation engine is a replicable initiative. The European Commission would consider helping Member States with set-up costs, should the need arise.
- NGOs representing the target groups of social policy are key potential users, and should therefore be involved in defining the questions to be addressed and the results to be provided. This illustrates one conduit through which social impact assessment has the potential to facilitate social dialogue.
- There is demand for a simplified user interface for the country components of EUROMOD itself.
- There is a perceived risk that model results may be misrepresented or misinterpreted, and this is one factor that discourages governments from creating open-access models. The risk will become easier to assess once experience is accumulated from those open-access models that exist.
- There is a need to extend the scope of modelling beyond income taxes, social contributions and cash benefits to include also indirect taxes and wealth taxes, because of their relevance to the European Semester. This mainly depends on being able to link relevant data (on consumption and wealth, respectively) to the input income data.
- There is a good case for including gender impact assessment in micro-simulations of the effects of policies, if the results are straightforward to interpret.



- There is a wide range of opinions on whether the “nowcasting” of the at-risk-of-poverty rate (AROP) is useful. On the one hand, it does not address the AROPE (at risk of poverty or social exclusion) indicator as a whole. But on the other, it offers an opportunity to include indicators of distributional issues on the same basis as macroeconomic indicators in assessments of the economic situation.
- Non-take-up of entitlement to means-tested benefits can be a key factor in determining their relative effectiveness, and it is important to distinguish non-take-up from lack of coverage by design. While there are a number of approaches to allowing for non-take-up in micro-simulation modelling, each has its pros and cons; there is scope for further work, with a focus on this issue.
- There is a need for a continuing forum for the exchange of experience and transfer of good practices.



A. Policy context at the European level

Micro-simulation models are one of several tools that may be used for *ex ante* quantitative social impact analysis (SIA) of policy changes. The 2008 Peer Review in the Slovak Republic considered the use of SIA in broad terms and also discussed the European Commission study on SIA, which identified the lack of appropriate tools, models and data sources for assessing social impacts quantitatively as one of the main challenges to effective SIA. The 2011 Peer Review in Belgium followed up by explicitly addressing the methodological challenges to effective SIA, considering micro-simulation as one of a portfolio of approaches. The aim of this 2014 Peer Review was to focus on micro-simulation and, in particular, to examine how this type of modelling can best be used to inform policy development and public debate and engagement in the social field, with special reference to current practice in Austria.

The promotion of *ex ante* SIA is fully consistent with the aims and objectives of the EU's Open Method of Coordination (OMC) for social protection and social inclusion policy. These are that policies should be evidence based, that policy-making should involve relevant stakeholders, and that concern for social protection and social inclusion should be mainstreamed throughout all policy areas. As part of the SIA toolbox, micro-simulation can contribute to all of these objectives, and the Peer Review made some progress in establishing under what circumstances it is highly relevant, and when it may be less so and other approaches must be found.

More specifically, the Europe 2020 strategy has set five headline EU-level targets for achieving smart, sustainable and inclusive growth. These have been translated into national targets, and policy proposals that might have an impact on movement toward the targets can in principle be assessed in these terms using micro-simulation. On the one hand, these might be policies that are intended to move outcomes towards their target values, and in the social sphere these would relate to the employment target and/or the poverty and social inclusion target. On the other hand, they might be policies that are intended to meet other targets with possible negative (or positive) effects on the social target outcomes. Or indeed they may be policies with other goals that nevertheless have an impact on movement towards or away from the social targets. Improving policy coordination across different domains, identifying situations where compensating social policies are needed to protect the vulnerable, and mainstreaming the social dimension, are all aspects emphasised by the European Platform against Poverty and Social Exclusion.

This perspective was given further impetus by the then President-elect of the European Commission Jean-Claude Juncker in his July 2014 statement to the European Parliament, where he proposed that "... in the future, any support and reform programme [should go] not only through a fiscal sustainability assessment; but through a social impact assessment as well. The social effects of structural reforms need to be discussed in public." Understanding what can, and cannot, be achieved with micro-simulation modelling is an important contribution of this Peer Review, since its limitations – as well as its potential – need to be clear if results are to inform public discussion, as well as policy-making.

The Social Investment Package (SIP), adopted in 2013, is a policy framework which takes account of the social, economic and budgetary differences between Member States and is monitored through the process of the European Semester. It is a strategy which combines



a strengthening of policies designed to help people take up and retain paid work (such as affordable, high-quality childcare and job-search assistance) with improvements in the efficiency and effectiveness of social protection provision. *Ex ante* analysis of policy changes in line with the SIP can be analysed with micro-simulation, although it should be noted that the long-term benefits of some forms of social investment (perhaps particularly in relation to early years investment in children) may be challenging to quantify with this approach.

The relevance of tax-benefit micro-simulation modelling

The main focus of static tax-benefit micro-simulation modelling is on **household income** and its components.¹ The approach can be used to estimate the effects of a policy reform on household income across the income distribution and according to household and personal characteristics, the budgetary cost of the reform and the effects of it on individual incentives to work. The scope of policies covered typically includes personal taxes, social insurance contributions and cash benefits. Importantly it captures the net effects of policy changes, once interactions with the rest of the tax-benefit system are taken into account. In addition, it estimates the budgetary effect of the change consistently with its distributional implications. This is particularly relevant in times of budgetary retrenchment (and perhaps similarly in times of budgetary expansion).

This kind of modelling can be used to assess the first-round effects of policy changes that have a direct impact on any of the taxes and benefits that are modelled. It can also be used to assess the implications for the operation and effectiveness of the tax-benefit system of changes in the characteristics of the population or the level and distribution of market incomes. Or, combining the two, it can be used to “nowcast” the income distribution.

More concretely, tax-benefit modelling is an appropriate assessment method to apply to the following types of analysis that are relevant in the European policy context:

- Comparing the effects of alternative reform proposals in the field of direct taxes and cash benefits on household incomes and income-based social indicators (improving the evidence base);
- Measuring the *ex ante* effects (budgetary and distributional) of policy reforms intended to reduce poverty and social exclusion and/or to improve the efficiency and effectiveness of social protection (as input into discussions as part of the European Semester, for example);
- Measuring the effects on income-based social indicators of tax-benefit policy reforms with other goals, such as budgetary consolidation or the improvement in work incentives;
- Estimating the current income distribution (“nowcasting”).

¹ Components can be defined in many ways including in terms of types of income (e.g. individual benefits) or according to who is the individual recipient within the household.



It is important to be clear about the main **limitations of the approach**. First, tax-benefit modelling cannot address the role of public services or social investments that do not have a direct effect on cash incomes in the short term.

Secondly, whereas the impact of policy changes on measures of income inequality or the at-risk-of-poverty rate (AROP) is one of the key uses of the approach, it cannot be used to measure the effects of policy changes on the other two components of the Europe 2020 headline indicator, AROPE (see Box 1): severe material deprivation and very low work intensity. Nevertheless, it is possible to examine the effects of a policy change on the income situation of the sub-groups judged to be severely deprived and/or in very low work intensity households.

Thirdly, while it is possible to take account of behavioural reactions to policy changes (or the macroeconomic effects of such changes), this is demanding and is not routinely carried out.

Finally, extending policy scope (e.g. to cover indirect taxes) is also possible, but requires additional effort.

These limitations are discussed further below.

Box 1: The at risk of poverty or social exclusion indicator (AROPE)

The at risk of poverty or social exclusion indicator (AROPE) comprises three components. It includes people who are at risk of poverty, or severely materially deprived or living in a household with a very low work intensity. These are defined as follows:

- The *at-risk-of-poverty* rate (AROP) is the share of people with an equivalised disposable income (after social transfers) below 60% of the national median;
- *Severe material deprivation* means not being able to afford four or more of the following nine items: mortgage, rent, utility, hire-purchase or other loan payments; one week's annual holiday away from home; a meal with meat, chicken, fish (or vegetarian equivalent) every second day; unexpected financial expenses; a telephone (including mobile phone); a colour television; a washing machine; a car; heating to keep the house warm;
- People living in households with *very low work intensity* are defined as people aged 0–59 living in households where the members of working age worked for less than 20% of their total potential during the previous 12 months.

B. Host country good practice under review

At the beginning of 2013, Austria introduced a policy of undertaking an obligatory “outcome oriented impact assessment” (OOIA) of proposed legislation and regulation in social policy.

In particular, it wanted to measure the effects of policy changes on the Europe 2020 headline indicator *People at risk of poverty or social exclusion* by developing a tax-benefit micro-simulation model. Drawing on previous Peer Reviews in Slovakia (in 2008) and Belgium (in 2011), the Austrian ministry worked with Belgium’s Flemish project (FLEMOSI) team to adapt the approach taken with the latter’s MEFISTO model. This is based on the EU tax-benefit model EUROMOD,² to which has been added a web interface offering a limited set of options of specific interest in the Flemish context.

Work on Austria’s **SORESI** (**s**ocial **r**eform micro-**s**imulation) model started in 2012, and the first version was launched in 2013.³ It follows its Flemish predecessor by being equipped with an easy-to-use web front end, customised to reflect Austrian policy concerns. It allows all citizens to simulate for themselves the effects of changes in three key social policy factors: social cash benefits, social insurance contributions and income tax. A second, improved version was launched in December 2014.

The SORESI website⁴ offers a clean and simple interface, which enables users to change selected parameters of these three policy areas. They then simply press a button to run the simulation and see what the effect would be on different target groups. The simulation shows the changes in net income for different groups of interest, such as the Europe 2020 social target group, quintile groups of the income distribution, or by gender or age group. The results can be shown for households, individuals and a selection of “model households”, whether single people, couples or single parents, and whether working, unemployed or retired. It also shows the overall fiscal impact (for private households) and the effect on the Gini coefficient and the at-risk-of-poverty rate.

SORESI is a static model. It calculates only the “overnight” effect of tax and benefit changes, and does not model any subsequent demographic, behavioural and macroeconomic impacts – such as changes in labour market behaviour – which may be among the objectives of policy change. Nor does it account for indirect taxes such as VAT or excise duties, or services delivered in kind.

The calculations are carried out on the server of the Austrian Federal Computing Centre, using the Austrian component of the EU-wide EUROMOD simulation engine and national EU-SILC data (the Austrian sample covers 6,000 households). A simulation currently takes about three minutes to run. The output tables can be printed or saved for further work. SORESI can be used in German or in English.

² See www.iser.essex.ac.uk/euromod and Sutherland and Figari (2013).

³ See Fuchs and Gasior (2014).

⁴ <http://soresi.sozialministerium.at/>



The work involved making use of existing software, data and approaches, adapting them to the Austrian context. It involved not only the ministry, but also the European Centre for Social Welfare Policy and Research (in Vienna), the Austrian Federal Computing Centre and Statistics Austria (provider of the EU-SILC data), with support from the EUROMOD team from the University of Essex and the FLEMOSI team from the KU Leuven University, and their collaborators. This approach, making use of existing tools, was quick and not costly to implement (relative to starting from scratch). It also has the advantage of being able to make use of EUROMOD updates to policies and other improvements, with minimum effort, while retaining control over the interface, which can be adapted to changing Austrian needs.

As the latest release is so recent, there is as yet little user feedback, and user behaviour is not tracked. Possible improvements in view include the graphical display of the results and the creation of a more flexible model for expert users.



C. Policies and experiences in peer countries and stakeholder contributions

Current practice and experience in the eight peer countries (Belgium, Czech Republic, Ireland, Croatia, Cyprus, Latvia, the Netherlands and the UK) is described below under four headings: (i) Use of tax-benefit micro-simulation by social ministries, (ii) Who develops and maintains the models? (iii) Issues related to model scope, quality and micro-data, and (iv) Approaches to model access and the dissemination and interpretation of results. This is followed by a summary of stakeholder views on the usefulness of micro-simulation for social impact purposes and of the host country approach.

Use of tax-benefit micro-simulation by social ministries

There is a wide range of current practice and past experience across the eight peer countries. In **Belgium, Ireland, the Netherlands and the UK** such methods have been used for many years to analyse the distributional effects of policy reforms, even if the main focus has not been on social impact assessment as such in all cases. For example, in **Belgium** most changes to policy at federal level are typically considered to have too small an effect on model results to be useful in the framework of Regulatory Impact Assessment.

At the other extreme, in **Latvia and Croatia** models are currently not used at all within ministries. In **Latvia**, extensive use has been made of OECD model family calculations and World Bank studies. A study of the social impact of tax changes using EUROMOD was commissioned by the Economic Ministry, suggesting that there may be appetite for more use of these tools in the near future. In **Croatia**, there is a planned academic project which will build a model and encourage the use of it by the ministry for policy development and assessment purposes.

There is also limited use of models in the **Czech Republic**, where, in spite of various academic model-development initiatives, existing models are little used and policy-makers remain to be convinced of their usefulness.

In **Cyprus**, on the other hand, a model has recently been developed in order to inform the design of policy changes as part of the economic adjustment programme. The usefulness of the approach is now widely accepted, and it has the additional effect of enhancing the nature of the dialogue with social partners. Based on this positive experience, the Ministry of Labour, welfare and social insurance now aims to develop its own integrated modelling framework.

Who develops and maintains the models?

Of the five countries with active use of micro-simulation modelling methods by social ministries, three develop and maintain their own (**Belgium, Cyprus and the UK**), whereas **Ireland and the Netherlands** make regular use of models developed by independent organisations. In **Ireland** there has been a longstanding arrangement that the Ministry of Social protection makes use of Economic and Social Research Institute (ESRI)'s SWITCH model. In **the Netherlands** the Ministry of Social affairs and employment used to run



its own model, but since 2014 it has used the MIMOSI model maintained by the Central Planning Bureau, which for a long time existed in parallel. In both countries, the arrangement is justified on cost-efficiency grounds, while it also has the advantage of avoiding multiple models providing different estimates. In **the UK** the model of the Ministry for Work and pensions model is one of several similar models operated by academics and research institutes, as well as by other government departments.

In countries without models and with demand for them, such as **Latvia**, there is scope for the Commission to coordinate technical and financial support for their development, learning from the host country approach.

Issues related to model scope, quality and micro-data

The models for **Belgium** and **the Netherlands** make use of administrative data from a number of sources. Like the host country model, the **Irish** model uses the national version of the EU-SILC, and **Cyprus** also uses the EU-SILC, although it has plans to augment this with administrative data.⁵ **The UK** uses data from a large household survey (Family Resources Survey) which was designed for the purpose, sometimes augmented with data from other sources for particular analysis.

None of the countries incorporate the effects of **behavioural reactions** to policy changes in their static micro-simulation models on a regular basis. However, there are prospects for integration of the model used by the Netherlands ministry with a labour supply model, and the planned (independent) Croatian model will include a labour supply component. In Belgium, the view is that econometric models developed to estimate labour supply effects across the population as a whole are not appropriate for the types of policy change they routinely analyse (not least because other types of behavioural change might be expected), and in these cases exercise-specific ad hoc approaches are adopted.

Capturing **non-take-up** of means-tested benefits can be important. This is recognised in the UK, where its modelling has become quite complex, and in Belgium, where this is understood to be an issue that varies by benefit and client group.

Applying micro-simulation to “**nowcast**” risk of poverty and related indicators is considered to be an important function in Cyprus, and is also carried out by the UK and Netherlands ministries on a regular basis. In Belgium, nowcast estimates would instead be derived using the dynamic longitudinal model MIDAS, run by the Federal Planning Bureau.

Analysis of the effects of policy changes **by gender** using the ESRI model has been carried out in Ireland (Keane et al., 2014).

Approaches to model access and the dissemination and interpretation of results

Among the peer countries with models, there is no experience of making official models available to the public on the web. In the cases where models are maintained by the

⁵ The Austrian SILC is mainly based on administrative sources of information.



ministries themselves, they are available internally only (sometimes sharing with other ministries). In the case of **Ireland** and **the Netherlands**, where an external organisation maintains the model, of course these organisations also make use of the models for their own purposes.

Three barriers seem to stand in the way of making models public. The first is the extra effort needed to make the model sufficiently user-friendly and transparent, together with some doubts about the demand for such a tool. The second is concern about the risk of misinterpretation of results by non-expert users. The third is the absence of a funding regime that would sustain model development and maintenance if it were open to all.⁶

A related issue is the extent to which model results themselves are disseminated beyond their immediate users within the ministry and how transparently communicated and well understood are the methods and assumptions. In **the Netherlands**, where the model itself was made available in the past, but is no longer due to budget cuts, some very detailed micro-level results are sometimes provided to the public on the web. There, the view is that the public is well used to the presentation of micro-simulation results as part of the public debate.

In **Ireland** some effort goes into a communication strategy, so that there is good understanding of results. This is facilitated by the fact that the independent model developer (ESRI) itself uses the model for analysis that is deliberately intended to inform public debate about the effects of policies and policy reform.

In **Belgium** there is openness about the internal workings of the official model through its documentation and open-source code in a more traditional, academic style.

There may also be concerns about misinterpretation of results *within* the ministry, especially if there is a division of labour between modelling experts and policy analysts, with a consequential need to communicate between the two groups as well as with politicians. **The UK** gave the example that it is not always understood that there is a degree of statistical uncertainty around point estimates from micro-simulation models.

Stakeholder contribution

SOLIDAR is of the view that taking account of the social effects of all EU policies through a structured dialogue in the framework of a comprehensive social impact assessment will lead to better decision-making. The SORESI initiative, making a micro-simulation tool freely available in Austria, has been welcomed by SOLIDAR's members in Austria. However, concerns have been expressed that the model does not take account of macroeconomic or behavioural effects, and that a long-term or lifecycle approach is needed if the effects of social investment strategies are to be fully captured. In order for the partial approach that is taken not to be misleading or counterproductive, it is important that there should be training in the use of the model and interpretation of results, as well as the involvement of social partners in framing the questions to be asked of the model and in defining the possible outputs. Stakeholder organisations have a role to play in helping their members build capacity to understand and use micro-simulation models.

⁶ Limitations on access to the micro-data used by the model may also play an important role in restricting its use, especially if administrative data are used.



D. Main issues discussed during the meeting

The issues discussed during the meeting are grouped under three headings below, (i) Data, model scope and ambition, (ii) Model access and use, and (iii) Developing models. However, it was very clear that there are some important interactions between these areas, and these are pointed out where especially relevant.

Data, model scope and ambition

SORESI and the underlying EUROMOD, as well as most micro-simulation models used in ministries in the eight peer countries, currently operate in “income space”, calculating the effects of changes in components of household income (direct taxes and cash benefits) on household income for populations and sub-groups of interest. Effects on indicators of income inequality and risk of poverty, as well as work incentives, are often calculated, as are budgetary effects.

In the case of SORESI, one of the key groups of interest is the AROPE social target group, as identified by the EU-SILC data. The model calculates the effect of policy changes on income for this group.

AROP or AROPE? SORESI can calculate the change in the number of people who are in the social target group because their household income is below the income poverty threshold. It can also be used to examine the effects of a policy change on the income situation of the sub-groups judged to be severely materially deprived and/or in very low work intensity households. But it cannot show the effect of policy changes on the size of these sub-groups making up the other components of the AROPE indicator – either low work intensity or severe material deprivation. This is because it is not straightforward to model these phenomena.

In the case of severe material deprivation, this would involve predicting how long-term consumption and expenditure decisions would change following a change to income. In the case of the number of people in households with very low work intensity, this would require an econometric model of labour supply that predicts reactions to policy changes at a very detailed level (i.e. according to the dimensions of work intensity) for all adult members of a household, simultaneously.

Behavioural responses: More generally, the effects on income are estimated without taking account of any effects on labour supply behaviour due to the change in income, or of macroeconomic effects due to changes in consumption or labour supply. Changes to other types of behaviour (e.g. savings or fertility) are not addressed either.

It is clear that these limitations need to be understood by the users of SORESI and other models, and the results interpreted accordingly, especially when the policy change is intended (or expected) to have an effect on behaviour. In addition, indicators of work incentives such as Marginal Effective Tax Rates (METRs) and Participation Tax Rates (PTRs) can be calculated.

Indirect taxes: It was agreed that including indirect taxes in micro-simulation models would be very relevant from a policy point of view. Technically, this depends on being able to combine data from the EU-SILC (or other income micro-data) with data from Household Budget Surveys (HBS).⁷ Studies exist for individual countries, and there are plans to extend the methodology in EUROMOD.⁸ However, there are data challenges related to the lack of harmonisation of HBS data across countries (and lack of standardisation across time). There are also challenges in explaining how to interpret the results of policy packages that include changes in indirect taxes as well as those affecting disposable income directly.

Wealth taxes: Similarly, having the capacity to include changes to taxes on wealth in micro-simulation models is of policy interest and in principle could be addressed by combining wealth data with income data. However, the very skewed distribution of wealth means that sample sizes are unlikely to be large enough to capture effects precisely. Also, it was noted that the European Central Bank survey data on wealth include information on returns but not on portfolios, which would be necessary for realistic wealth tax modelling. In spite of the challenges, given the interest in the area it is expected that some progress will be made. It was noted that Eurostat is exploring possibilities for data linkage.

Data improvements and data combining: Models such as SORESI are limited in what they can do by the availability and quality of micro-data. Collaboration with national statistics offices (NSIs) to improve the available data for input into micro-simulation models is to be encouraged. More generally and at the EU level, as part of coordinated data collection efforts (by Eurostat, other agencies and NSIs), opportunities should be identified to consider the data needs of micro-simulation models used for policy purposes, in terms of content as well as timeliness.

Non-take-up of entitlements to means-tested cash benefits can be a key factor in determining their relative effectiveness, and it is important to distinguish in micro-simulation modelling non-take-up from lack of coverage by design. The size of the problem varies across countries, depending on many factors; but there are large gaps in our knowledge and there is no easy solution, since measuring the scale of non-take-up and understanding its drivers requires very precise and detailed consistent data on receipt and entitlement.⁹ Nevertheless, there are a number of approaches that are taken, each with its pros and cons.

One option is to assume 100% take-up, taking care to explain that the modelling captures the intended effect of the system, and also explaining the resulting under-estimation of income poverty, as well as the exaggerated apparent relative effectiveness of means-tested benefits compared with non means-tested benefits (which tend to have high or complete take-up rates).

A second option, adopted by the host country in SORESI, is to link take-up to recorded receipt in the EU-SILC data. This has the advantage of maintaining consistency with EU-SILC measures of income, but has the drawback that it limits the scope of simulation possibilities (i.e. policy changes to be examined) to those that do not extend entitlements to

⁷ Alternatively, Household Budget Survey micro-data containing detailed and high-quality information on income can, in principle, be used as the input for a tax-benefit model.

⁸ For example, Decoster et al. (2014).

⁹ For a Eurofound study in progress, see http://eurofound.europa.eu/sites/default/files/ef_files/extranet/board/documents/committees/2014/20140925_01/accesstobenefits.pdf



means-tested benefits to new recipients. It also relies on the quality of the EU-SILC data on benefit receipt, which may in fact be under-reported in the case of survey data.

A third option is to attempt to model take-up behaviour, however imprecisely. Where non-take-up is known to be an important phenomenon (as in the UK), such adjustments are usually adopted. In most other peer country analysis this is not done, although results may be calibrated to macro-level information about receipt (e.g. in the Netherlands). There is interest in further work focussing on this point, not least because it is important from an impact analysis perspective to know about the situations in which benefits are not reaching the groups for which they are intended. This is distinct from lack of coverage, where benefits exclude certain groups by design.

Nowcasting (producing timely “flash estimates” of AROP and other income-based indicators) can be carried out to partially fill the gap caused by the 2–3 year time lag in the EU-SILC statistics (and longer in the case of some data used at national level). A range of techniques in combination with a tax-benefit micro-simulation can be used to capture not only the effects of policy changes, but also the evolution of market incomes, and changes in the labour market and the demographic structure. Dynamic micro-simulation techniques can also be used.

Given the nature of the tools and data that can be applied, it is to be expected that in some contexts (time periods and countries) the flash estimates correspond well to the standard indicators, once they are available; but in other cases this “reality check” is less reassuring. While similar to the situation with forecasts of GDP, which are widely used, discussion demonstrated that there is a range of opinion about the usefulness of nowcasts of income distribution. Two concerns were raised: that nowcasts are limited to one component of the AROPE indicator; and the advisability of disseminating them publicly or even within ministries. In the second case, some think that there is an unacceptable risk of reputational damage to the models themselves – and potentially to SIA generally – if nowcasts prove inaccurate. On the other hand, there is also the view that advance warning of possible movements in the indicators is potentially so valuable – if it permits the integration of distributional issues into economic discussions and policy planning – that this risk should be managed. Efforts should be made to distinguish and communicate the different types of use of models, as well as the parallels with forecasts of GDP, exchange rates and other macroeconomic indicators that are widely accepted.

Furthermore, there is potential value in understanding the drivers of the nowcast change in the statistics (i.e. changes in policy, labour market, market income evolution, etc.). Put another way, it is highly relevant to be able to understand to which economic changes, and in which context, movements in AROP are sensitive.

Gender impact: There is growing interest in gender impact assessment, although it is an open question whether this should be seen as integral to social impact assessment or separate from it. Depending on the policy under review, a full gender impact assessment should take account of the responsibilities for care, as well as income-generating activities; this may require different types of data (e.g. on time use). Such data are not currently available at the necessary level of detail, timeliness and harmonisation in the EU.

Nevertheless, having analysis by gender in “income space” as a possibility within tax-benefit micro-simulation analysis is worthwhile, so long as the assumptions that are made are transparent and their interpretation is straightforward. The main challenges for the most basic analysis (e.g. comparing changes in male and female incomes) involve making plausible assumptions about the allocation and sharing of benefits (including tax expenditures) made available at the couple, family or household level, rather than at the individual level, and being clear about the implications of these assumptions for the interpretation of results. How complicated this is depends on the nature of the tax-benefit system. Exploratory work has started in Ireland (Keane et al., 2014) and there is scope for a comparative study to demonstrate the possibilities and limitations of this approach.

Model access and use

SORES1 is a pioneer, in terms of a ministry initiative, in providing entirely unrestricted access via the web. This has the potential to improve public understanding of policy-making and the political process, and the effects of policies. It provides capacity for social partners and citizens’ organisations to make use of micro-simulation in engaging in policy discussions, formulating their views on policy initiatives, and developing their own ideas and proposals.

In Austria there is a legal framework which obliged politicians to allow the SORES1 initiative to take place (whether or not they supported it in fact). In other contexts, where there is no legal obligation, they may be in a strong position to resist making more widely available the policy tools that are used internally in ministries. In situations where no other similar models are generally available, this reduces the possibility of informed commentary or opposition which might impede or delay the implementation of government proposals.

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While this is one explanation for lack of public access to micro-simulation models run by ministries, there are other contributing factors. As well as the extra cost and work involved in making the model generally accessible and providing support in its use, there is a perceived risk of misinterpretation of results from the model. This risk can be reduced through a number of strategies: by providing good documentation and training, limiting the output options to indicators that are both sensitive to the scale of likely changes and statistically robust, and being open to feedback on the transparency and ease of use of the model.

As in the case where there is more than one model, multiple users of the same model may arrive at apparently different results for the same question. This may happen because of differences in assumption or lack of understanding of what the model is doing. This is not necessarily always a problem: it can result in a creative tension, stimulating further investigation, dialogue and, eventually, better understanding. However, there is a view that competing estimates may raise questions about the quality of the model (or models) or the usefulness of the approach.

It was agreed that developing an easy-to-use interface for EUROMOD itself, customising it on a country-by-country basis, would help to promote its use among non-expert potential users, such as within the Commission services and among stakeholder organisations.

With regard to SORES1, there is a need to promote the tool and to train stakeholders to use it. NGOs, employers and trade unions can be consulted about the development of policy



fields and output statistics to meet their needs. This is best done now that the technical solution has been established and there is a body of users (and potential users) to consult with.

Developing models

Member State ministries without a model could make the investment using the SORESI approach (or just using EUROMOD), with an initial cost that is much lower than starting from scratch, because of the possibility of building on what has been done in Austria (and in Flanders before), and in particular because EUROMOD itself comes free of charge (as it has the support of the European Commission). SORESI's one-time project costs include the technical implementation (EUR 170,000) and the development of the model concerning content, policy specifications and data updates (EUR 80,000). The annual costs for operating the IT infrastructure amount to approximately EUR 20,000.

There is also a short-cut in terms of development time needed. The main effort is in the customisation, including the the web interface, which addresses policy issues relevant for the Member State in question. The running cost is also low and depends on how much effort is put into promoting public access via the web. (The technical approach adopted by SORESI could be used without making the web interface public.) It also depends on the extent to which the ministry wants to adapt what EUROMOD already does. The running cost is extremely small relative to the cost of the changes being analysed or relative to the potential cost of making badly informed policy decisions.

Nevertheless, it is recognised that the sustainability of a model, once constructed, depends on how much it is then used and whether it becomes established as a respected source of evidence within the ministry, as part of the European Semester or any other international engagement, or as part of stakeholder engagement.

There are examples from peer countries where models were available but not extensively used and support for them was not sustained; and others where they were used in emergency situations (as part of an economic adjustment programme), and through that process have established themselves as part of the good-practice toolbox on which ministers and officials rely.

Furthermore, not only can stakeholder engagement provide a voice for the concerns of vulnerable people in the process of specifying the policy fields (framing the policy options that can be analysed) and designing the output statistics; it can also play a useful role in encouraging stakeholder organisations and their members to press governments to use the tools that have been developed.

Use of micro-simulation model analysis as a regular part of the input into the European Semester discussions should also be encouraged.

Finally, there is much to be learned by sharing resources, experiences and knowledge across countries – and also within countries. This applies not only to finding technical solutions to particular data, analytical and IT challenges, but also to developing ways to use micro-simulation as a tool for social impact assessment and engagement.

E. Conclusions and lessons learned

The discussions that took place within the Peer Review meeting were agreed to have been very useful and an excellent example of genuine knowledge exchange across Member States. Moreover they contributed to bridging the gap between academic research and policy-making. The key conclusions and lessons learned were:

- Building customisable national web front ends for the EUROMOD simulation engine is a replicable initiative. The European Commission would consider helping Member States with set-up costs, should the need arise. However, the cost of continuing support for users and maintenance of the model should also be borne in mind.
- NGOs representing the target groups of social policy are key potential users, and should therefore be involved in defining the questions to be addressed (policy parameters that can be changed) and the results to be provided (e.g. definition of specific groups of interest). This illustrates one conduit through which social impact assessment has the potential to facilitate social dialogue.
- There are persuasive arguments for developing systems with two interfaces – a user-friendly but limited one, focussed on policy options of current national relevance, for use by the general public and policy officials; and a more flexible one for expert users. There is also a demand for a simplified user interface for the country components of EUROMOD itself.
- There is a perceived risk that model results may be misrepresented or misinterpreted, and this is one factor that discourages governments from creating open-access models. The risk will become easier to assess once experience is accumulated from those open-access models that exist. It should be noted that the technical approach used in SORESI could also be applied to a non-public interface (e.g. on a ministry intranet).
- There is a need to extend EUROMOD (and hence models such as SORESI, which make use of it) to include the modelling of indirect taxes such as VAT, alcohol and tobacco duty, as well as wealth taxes, because of their relevance to the European Semester. This mainly depends on being able to link relevant data (on consumption and wealth, respectively) to the EU-SILC samples.
- Where good-quality national micro-data are available, they can be used to augment or replace the EU-SILC data, so that the model can more accurately reflect national tax and benefit systems and can take more recent data into account.
- There is a good case for including gender impact assessment in micro-simulations of the effects of policies, if this is straightforward to implement so that results are easy to interpret, for example in relation to pension issues.
- There is a wide range of opinions on whether the nowcasting of AROP is useful. On the one hand, it does not address the AROPE indicator as a whole. But on the other, it offers an opportunity to include indicators of distributional issues, on the same basis as macroeconomic indicators, in assessments of the economic situation. While there are concerns about reputational damage should nowcasts turn out to be inaccurate, this often happens with macroeconomic indicators, yet they continue to be used.



- Non-take-up of social benefit entitlements is an issue that has long needed greater attention. Not taking account of non-take-up in micro-simulation modelling can result in underestimation of poverty levels and in overestimation of the relative effectiveness of means-tested benefits. It is important to distinguish non-take-up from lack of coverage by design. One option is to link take-up to recorded receipt in the input data, but this limits the types of policy change that can be simulated by the model. It is recognised that non-take-up is difficult to measure and model precisely, and is very country and benefit specific. There is scope for further work with a focus on this issue.
- There is a need for a continuing forum for the exchange of experience and transfer of good practices.



F. Contribution of the Peer Review to Europe 2020 and the Social Investment Package

Tax-benefit micro-simulation is a useful tool in measuring progress towards meeting the objectives of the Europe 2020 strategy, and in particular the headline target – that between 2010 and 2020 the number of people in or at risk of poverty and social exclusion should fall by at least 20 million (the figure currently stands at 124.5 million).¹⁰ It forms part of a broader drive to coordinate different policies, as is shown by the commitment the new President of the European Commission, Jean-Claude Juncker, has made to assess the social impact of structural reforms and to promote public discussion of these effects. In this context, the **European Semester** approach could benefit from analysis based on micro-simulation models.

The tool can assist the Open Method of Coordination in social protection and social inclusion in two specific ways: first, it helps policy-makers to develop policies **based on evidence**, because it enables them to see in detail how policy changes are likely to affect different parts of the population, and especially target groups. It also allows an estimate of the budgetary effects of such policy changes. Secondly, the open availability of a micro-simulation model allows **stakeholders**, such as academics and NGOs representing target groups, to play a more active part in policy-making, because they can compare the effects of government proposals with those of possible alternatives and are in a position to scrutinise official claims for the effectiveness of policies.

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However, as regards **mainstreaming** social inclusion into other policies, the potential for the use of micro-simulation needs to be assessed on a case-by-case basis. On the one hand, the capacity to highlight the distributional effects of economic policies aimed at fiscal consolidation (for example) offers an opportunity to mainstream social impact. On the other hand, there are limitations to tax-benefit micro-simulation that need to be appreciated. These include assumptions (e.g. about non-take-up), the extent of coverage of the fiscal system and generally ignoring possible behavioural and macroeconomic feedback effects. Nevertheless, there is potential to address each of these issues on a case-by-case basis.

Tax-benefit micro-simulation could be useful in assessing the impact of potential social policy reforms (such as changes in benefits and services) on poverty and social exclusion. It can also be used to evaluate policy approaches announced in the **Social Investment Package** (investing in children, activating and enabling benefits, etc.). However, the results of static modelling must be interpreted with caution, as they risk underestimating impacts which may take a number of years to be realised. In order to forecast the return to social investments, the tax-benefit model must be linked with modelling of the relevant behaviours, such as a labour supply model in the case of childcare policies.

There is a need to continue the effort to strengthen understanding about ways in which tax-benefit micro-simulation can reliably be used to assess social impact; and about when extra refinements are needed or when alternative approaches must be used.

¹⁰ <http://ec.europa.eu/eurostat/web/europe-2020-indicators/statistics-illustrated>



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The political adequacy of quantitative impact assessment in the social field using micro-simulation models

Host country: **Austria**

Peer countries: **Belgium – Croatia – Cyprus – Czech Republic – Ireland – Latvia – Netherlands – United Kingdom**

Quantitative models which simulate the probable effect of changes in taxes and welfare benefits can provide policy-makers with a useful evidence base, and can enable stakeholders such as NGOs to play a more active role in policy formation. Austria has broken new ground by creating an easy-to-use public website that enables any citizen to calculate the effects of tax and benefit changes on different sections of the population.

The Peer Review held in Austria (4-5 December 2014) was an opportunity not only to facilitate genuine knowledge exchange across Member States, but also to contribute to bridging the gap between academic research and policy-making. This report summarises the key issues discussed and the lessons learned.

