SESSION 2 – THE USE OF MICROSIMULATION MODELS FOR FISCAL POLICY ANALYSIS: EVIDENCE FROM THE EU

SESSION 2.1 – EVIDENCE FROM EU MEMBER STATES

Prof. Egbert Jongen (CPB) discussed two microsimulation models that the CPB Netherlands Bureau for Economic Policy Analysis employs for forecasts and analyses on purchasing power, labour costs, social security and income taxation: (i) MIMOSI, for ex ante analysis of fiscal reforms and (ii) MICSIM, for ex post analysis of fiscal reforms. The MIMOSI model is the official tax-benefit calculator of the Dutch government and it is used for ex-ante budgetary and distributional effects of fiscal reform proposals. MICSIM is a structural model for labour supply, simulating past reforms and validating the behavioural responses with quasi-experimental studies. Documentation of workings of the models and output are publicly available, although the models’ codes are not public.

Stuart Adam (IFS) presented TAXBEN, the static microsimulation model of the UK tax and benefit system used by the Institute for Fiscal Studies. Built in the early 1980s, the model includes tax and benefit systems since 1975 (plus hypothetical alternatives). The model covers income taxes, employee and employer social security contributions, council taxes, VAT, taxes on specific goods, state pensions and all significant state benefits and tax credits. However, it does not include capital and business taxes. Additionally, there are no behavioural responses or economic effects embedded in the model, but it is employed extensively as input to behavioural modelling (e.g. TAXBEN-generated budget constraints used to estimate labour supply models, consumer demand systems etc.).

Milagros Paniagua (IEF) presented the experience of tax simulation modelling at the Instituto de Estudios Fiscales (IEF, Spain). The institute uses two microsimulations models: TAXSIM-IEF and EUROMOD, based on different types of data (cf. administrative and survey data). TAXSIM-IEF is based on register data, combined with the Household Budget Surveys (HBS) and includes SME corporate data and a behavioural module. Additionally, the IEF does ex ante evaluations of tax reforms using EUROMOD. Their analyses consider both the fiscal and redistributive effect of tax reforms. Recently, the IEF produced a paper on the effect of in-work benefits on female labour supply and income distribution based on EUROMOD simulations.

Prof. Antonie Bozio (IPP) talked about the experience of tax simulation modelling at the Institut des Politique Publique (France), in partnership with the Paris School of Economics (PSE) and CREST, a research institute associated to the French National Statistical Office (INSEE). Their goal is to improve public policies by bringing academic evidence to the public debate. However, microsimulation funding depends on specific projects. Currently, the IPP has three open source models: (i) TAXIPP, which is a static tax and benefit model (including a labour supply adjustment) and is based on administrative data; (ii) PENSIPP, which is a dynamic pension model (based on three modules: demographics; employment and earnings; pensions); (iii) TAXIPP-LIFE, which is a general dynamic model aiming at adding health, elderly care and labour market transitions.

Questions of the session were addressed to the speakers at the end of the session.
Kevin Hassett (AEI) warned against optimization done with respect to the wrong tax rate which could give rise to second order losses and utility losses. Politicians do not understand that policies may change the marginal rate and that behavioural responses could have an impact. They tend to think these changes do not affect labour supply and, consequently, that there is no second-round damage. This is an erroneous analysis showing that the meaning of the marginal tax rate is not understood. It is important to improve the way of presenting tax reforms in a manner that politicians do not necessarily need to understand the meaning of marginal rates. Prof. Egbert Jongen agreed and added that this is the purpose of the CPB website. He argued that the misinterpretation of marginal rates can lead to wrong analysis. It is a bad idea not to inform the public.

Prof. Manos Matsaganis (Politecnico di Torino) asked Stuart Adams to expand on the methodology IFS uses to combine tax and benefit models with macro models to account for behavioural responses. Stuart Adams explained that the methodology mainly consists in estimating the labour supply impact and mentioned three different approaches: a standard discrete choice model; measures of work incentive that cover all population; and a dynamic life-cycle model that only applies to women. The aim was to ensure the robustness of the estimates using the three options.

Following up on this question, Anamaria Maftei (DG JRC) wanted to know whether labour supply elasticities were disaggregated; because, for example, the CBO uses one income elasticity for all earners. Stuart Adams confirmed that the elasticities are disaggregated in over two hundred categories, but that they can also compute individual elasticities starting from a set of assumptions. In the latter case, one should not presume that the outcome would be the same as in the first option (cf. the labour supply model). This would not be the case since the elasticities are partly taken from the literature, partly computed by the IFS.

Sara Riscado (DG JRC) asked Milagros Paniagua for the role of behavioural responses and the relevance of explaining these responses to the public. Milagros Paniagua agreed that behavioural responses need to be taken into account in particular in some analyses, together with first-round impacts.

Kevin Hassett (AEI) asked the speakers to explain the relevance of their modelling tools and analysis in the political debate. Prof. Egbert Jongen reported about the Dutch experience, where economists at the CPB assessed the redistributive impact of some policies to support the political debate during the 2010 political election. Milagros Paniagua pleaded for more policy evaluation.

Prof. Egbert Jongen (CPB) asked for clarification on the use of different software used at IPP in reaction to Antoine Bozio´s presentation. Prof. Bozio explained that the IPP first started using Stata before turning to Python for microsimulation and R for dynamic macro modelling. He mentioned that soon all models elaborated in IPP will be programmed in Python, although this was very costly in terms of human resources.

Kevin Hassett (AEI) pointed out that Python, as open source software, gives the possibility to students to experiment and develop new tools and codes. Prof. Antoine Bozio referred to the importance to have experts that master the use of software.

Roberto Ramos (Banco de España) asked why the IPP moved away from Stata. Prof. Antoine Bozio explained Stata is good for econometric analysis, but it is not proper software for this kind of micro models and analysis.

Finally, Salvador Barrios (DG JRC) asked about the interaction of the IPP with the French public administration, in particular in what concerned the access to the administrative tax return data. Prof. Antoine Bozio explained that IPP is engaging with the French government more and more, with several
projects and different public institutions. He also pointed out the cultural barrier for applied analysis
and exchange of best practises in France still persisted, but that things were changing also in favourable
directions. The IPP also has access to universal, individual tax return data in France.

**Session 2.2 – Evidence from the European Union**

Anne van Bruggen (DG ECFIN) discussed the EU’s role in national tax policy and the usefulness herein of
microsimulation analysis. The Stability and Growth Pact ensures that countries in the European Union
pursue sound public finances. Economic policy coordination (cf. the European Semester) is achieved
through multilateral surveillance to boost growth and employment at the national level. The European
Commission itself provides country-specific analysis and recommendations, including on the area of
taxation. The Member States decide specific measures and the Commission assesses their revenue
impact. Anne van Bruggen stressed the important role of the DG JRC in this respect. The existing
toolbox of macro estimates and country-specific expertise are now complemented by microsimulations
provided by the DG JRC, which makes a crucial contribution through microsimulations that assess the
impact of reforms on revenue, labour supply and income distribution.

Salvador Barrios (DG JRC) presented the role of the EUROMOD model within the framework of the
European Semester. Financed by the European Commission (DG EMPL), EUROMOD is a microsimulation
model developed by the University of Essex and 28 national teams. Using standardised coding across
Member States, EUROMOD accounts for the interactions between various components of the tax and
benefit systems. The macro validation of EUROMOD output is done by comparison with national
external statistics and is achieved with less than a one year lag. Current extensions of EUROMOD
include consumption taxation and behavioural reactions. EUROMOD is also used to obtain precise
modelling of tax reforms to assess the impact of discretionary tax measures, accounting for the
interaction of reforms with the rest of the economy (dynamic scoring).

During the discussion that followed, the keynote speaker Prof. Alan Auerbach (University of California,
Berkeley) asked for clarification on the QUEST model mentioned by Anne van Bruggen during his
presentation. Janos Varga (DG ECFIN) explained that QUEST is a DSGE-type model developed by the
European Commission.

Prof. Len Burman (TPC) asked Salvador Barrios about the consistence of taxes on consumption and the
two-step distribution via wages and capital. What is the better way to approach their incidence in
models? Salvador Barrios in turn asked him if he was referring to the fact that firms can, for example,
increase price levels in the long run. Prof. Len Burman suggested that the distributional results are very
different depending on the way of modelling the consumption tax. Prof. Alan Auerbach intervened
saying that he disagrees on the fact that the incidence would be very different. For him, the timing is
different but the tax burdens are the same. There are macroeconomic effects. One of the arguments in
Europe to shift from wage taxes to consumption taxes is because there are nominal rigidities. Within a
currency union shifting from labour taxes to consumption taxes would improve national
competitiveness, and this is something that should come up in a model like QUEST.

Next, Kevin Hassett (AEI) highlighted the importance of transparency for the Fiscal Policy Analysis unit.
In particular, in relation to the activity carried out for the European Semester with DG ECFIN the
country desks would benefit from a direct access to the model. In addition, he asked to extend on the
barriers to transparency in Europe. Salvador Barrios stressed the importance of the existing EUROMOD
web interface and agreed that the ultimate aim would be to make the full model accessible. Matteo
Salto (DG ECFIN) contributed to the debate on transparency by elaborating on the DG ECFIN
experience, which as a general practice does not make the results of its analysis public.
Anne van Bruggen gave an example about a proposal to reduce labour taxation. They looked at countries where it is expensive to hire people or the incentives to work are small due to a combination of low income and generous benefits. In this regard, extending EUROMOD to include VAT can provide additional information on the interactions at the micro level.

Finally, Gonzalo Cappriolo (Ministry of Finance, Slovenia) asked Salvador Barrios several questions. The first question concerned the assumption of revenue neutrally in the simulations. The second question touched upon the tax shift. The last question inferred on the use of ex post impact assessment to validate the model. Salvador Barrios replied that there is no revenue neutral assumption, i.e. there is no compensation. On the other hand, the Commission will not look at past reforms. Nonetheless, what it will do is to use data provided by Member States to mimic the impact of reforms that they had estimated with the available information before the implementation of the reform. Anamaria Maftei (DG JRC) extended the explanation about the no-revenue neutral assumption in the model.