A short introduction to microsimulation: How can it help?

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DG-EMPL conference
Microsimulation for Policymaking in Times of Crisis
21st November 2012, Brussels

INSTITUTE FOR SOCIAL & ECONOMIC RESEARCH

Outline

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- Tax-benefit microsimulation
- What is special about EUROMOD?
  - A little history
  - National models
- EUROMOD – ways it can be used
- A vision for the future

Microsimulation – an introduction in one slide

- Microsimulation is a general term for modelling the behaviour and interactions of micro units (persons, households, firms etc)
- A microsimulation model is a set of rules operating on a representative sample of micro units
- Many possible types of issue and micro-unit:
  - traffic flows, water supply, dental health ...
  - Here, the focus on income and households (persons)
- Several types of model: “static”, “dynamic”, “behavioural”
  - Here the focus is on “static tax-benefit models”
  - But these can incorporate elements of dynamic modelling and can be linked to behavioural models
- The main aim is to analyze the impact of policy changes on the distribution of target variables, rather than
  - on the mean, as happens using regression techniques
  - on individual cases, as happens using OECD-style standard family type calculations

Tax-benefit microsimulation models

- Tax-benefit models deal with income, re-calculating income components (taxes and benefits) for households from micro-datasets under different assumptions
  - Policy change
  - Exogenous economic change (e.g. earnings growth; unemployment)
  - Household characteristics
- Typically: income taxes, social contributions and cash benefits
  - + sometimes indirect taxes, non-cash incomes
- Main indicators/outputs
  - Risk-of-poverty and income inequality
  - Budgetary cost of changes
  - Gainers and losers from policy changes
  - Work incentives
- “Budget constraints”
- EUROMOD is a special tax-benefit model

What is special about EUROMOD?

- Many countries in a common framework
- Highly flexible and transparent
  - Comparability
  - Easy to simulate major reforms to policy structures
  - Short cut to model building (non-EU)
- Core EUROMOD: effects of policy changes on income (+ effects of other changes on impact of policy)
  - First round budgetary, distributional and incentive effects
  - Cross country comparisons, EU-level analysis, “policy swaps”
- Up to the model user to (e.g.)
  - Link to labour supply or macro models
  - Extend policy scope (subject to data availability)
    - Facilitates user-designed extensions and linkages (“talks” to Stata)
    - Provides the “engine” for simplified web-based models (Flemosi)

A little history and current state of play

- EUROMOD was built because of difficulties in making national model calculations comparable: first constructed by an EU15-wide project; funded by various EC FP grants (1996-2008)
- Since 2009 supported by PROGRESS funding from DG-EMPL
  - Extension to EU-27 (+ Croatia)
  - Based on micro-data from EU Statistics on Income and Living Conditions (EU-SILC)
  - Regular programme of updating of policies and input data
  - “Roadtesting” the model
  - Cooperation between a network of national experts in each country + core team of developers (researchers), led by U of Essex
  - First EU-27 version was released in August 2012 based on 2008 data and policies 2007-2010
  - Currently working on update: policies up to 2012; data 2010

EUROMOD and national tax-benefit models

- National models exist in many of the EU member states
- As well as its multi-country coverage EUROMOD has two big advantages in most cases:
  - Much *more* flexible than national models, making complex structural changes and “blue skies” reforms quick to simulate
  - Freely available for not-for-profit research and analysis; (input data is subject to access conditions). National models tend to be private to their owners/developers (with notable exceptions e.g. openfisca.fr)
- On the other hand
  - National models may be easier to use for simple parametrical changes in one country
  - National modellers may have access to more detailed data than the EU-SILC
  - EUROMOD is the national model in some countries;
  - Models have been built for non-EU countries using the EUROMOD framework (South Africa, Serbia, Russia, …)

EUROMOD: ways it can be used (I)

- Effects of policy changes (actual, proposed, illustrative)
- New policy ideas at national or EU level
  - Implications of common measures (e.g. an EU-wide minimum income)
  - Design of reforms with common objectives (e.g. a target reduction in a poverty indicator)
  - EU-level measures (between- as well as within- country effects)
- Consistent cross-country comparisons
  - Explicit comparisons
  - Policy swaps
- Economic changes and the effectiveness of existing policies
  - Automatic stabilising (aggregate) effects
  - Income stabilisation (micro/distributional) effects

EUROMOD: ways it can be used (II)

- Scenarios for employment, income growth, household composition and policy reform: implications for the income distribution (and the AROPE target group)
- “Nowcasting” and understanding the drivers of short-term change
- Forecasting (e.g. to 2020) based on scenarios (or official forecasts) for employment, demographics and household composition, income growth and indexation of taxes and benefits.

- And, with linkage to other models and/or data ….. many other things.

The EUROMOD community

- Model developers (researchers)
- National teams (universities, policy institutes, government depts.)
- Academic researchers and other hands-on researchers
- Policy users/stakeholders
  - Government/non-government
  - National/EU level; international
- Data providers (Eurostat and NSIs)
- Non-EU users of the EUROMOD software

Vision for EUROMOD's future

- More users and more uses
- Narrowing the gap between academic research and policymaking
- Strengthening the links within the community
  - A common analytical tool for "policy learning"
    - accessible across stakeholders in Europe 2020
    - comparable across Member States
  - Encouraging academic engagement with the analytical challenges posed by the current economic/social situation and new policy agendas
  - Improving data and communication about data requirements
  - Establishing an appropriate governance and support structures for the long term

Thank you!

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With thanks to all the current/recent members of the EUROMOD development team: Silvia Avram, Paola De Agostini, Francesco Figari, Xavier Jara Tamayo, Horacio Levy, Christine Lietz, Jekaterina Navicke, Alari Paulus, Olga Rastrigina, Iva Tasseva & Alberto Tumino and to the EUROMOD national team members.