



## Editorial

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This Winter 2016 issue of the *International Journal of Microsimulation* contains a final selection of papers presented at the 5th World Congress of the International Microsimulation Association in Luxembourg, which took place at LISER (Luxembourg) on 2-4 September 2015 (a first selection was published in the Summer 2016 issue), plus three regular articles.

The first two contributions to the special issue section deal with income data sources for European countries. The paper by Dieter Vandelannote, Andre' Decoster, Toon Vanheukelom and Gerlinde Verbist analyses the quality of gross incomes as reported in the Survey on Income and Living Conditions (SILC), a dataset that is widely used in European microsimulation models, and finds that the SILC underestimates incomes, as compared to fiscal data. A calibration method to reconstruct gross incomes from net incomes is presented and discussed. The second paper, by Sarah Kuypers, Francesco Figari and again Gerlinde Verbist, look at the prospects for using the Eurosystem Household Finance and Consumption Survey (HFCS) dataset as an underlying micro-database for the EU tax-benefit model, EUROMOD. In this case it is a measure of net income which is missing, and the authors simulate them with EUROMOD. The third paper in the section is by Esteban Muñoz, Ivan Dochev, Hannes Seller and Irene Peters, and presents a spatial microsimulation method to construct synthetic cities.

Among the regular articles, the one by Peter Stephensen introduces a new algorithm for

multinomial alignment, Logit Scaling, which minimises the distortion in the probability distribution. The method outperforms the algorithms generally used in the literature (see the review by Li and O'Donoghue, 2014), and represents a real advance in microsimulation modelling. After all those methodological papers, the last two contributions focus on application of microsimulation modelling to health issues in Australia. The paper by Sharyn Lymer, Deborah Schofield, Crystal M Y Lee and Stephen Colagiuri deals with simulation of multiple chronic diseases and associated risk factors. The model offers 15 year projections –from 2010 to 2025 – using a combination of static and dynamic methods. Finally, the paper by Alison Ritter, Nagesh Shukla, Marian Shanahan, Phuong Van Hoang, Vu Lam Cao, Pascal Perez and Michael Farrell deals with the life paths of heroin users, simulating consumption, criminal activities, treatment, and the transmission of HIV (human immunodeficiency virus), and HCV (hepatitis C). The outcomes are measured in terms of costs associated with treatment provision and healthcare services, criminal activity, life years lost, and family benefit of treatment.

### **Suggestions for further readings**

As we are completing the issue, we are struck by the sad news that prof. Tony Atkinson passed away. Tony Atkinson has been, for over half a century, a towering figure in the analysis of inequality, poverty, the economics of the welfare state, and optimal taxation, topics which are at the heart of microsimulation modelling in the social sciences. Among the many, illuminating, obituaries he received (a list is available from his official website at <http://www.tony-atkinson.com>), I recommend the one published in *The Economist* magazine<sup>1</sup>, and the one by Thomas Piketty, perhaps the most well-known of his countless students<sup>2</sup>. His last book, *Inequality. What can be done?*, Harvard University Press, 2015, which Tony, aware of his time, completed in just three months, blends sharp analysis, broad overview and concrete policy proposals, in his usual passionate yet accurate style. It is a must read for anyone interested in inequality. A discussion of the book by two of my all-time favourite economists, Robert Solow and Paul Krugman, led by the director of the LIS data center Janet Gornick, is available at

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<sup>1</sup> <http://www.economist.com/news/finance-and-economics/21713852-intellectual-warrior-fight-against-poverty-anthony-atkinson-british>.

<sup>2</sup> <http://piketty.blog.lemonde.fr/2017/01/03/passing-of-anthony-b-atkinson/>

<http://krugman.blogs.nytimes.com/2015/05/23/a-conversation-about-inequality-and-atkinson>.

Associate Editor Deborah Schofield comments on the recent US election outcome, which suggests there may be substantial unwinding of previous health reform at the national level, with in turn may lead to adjustment in State health policy. She suggests that a model to estimate the impacts of these changes will be critical to understanding the impacts of these changes to equitable access to health care. A recently reported model called COMPARE is a microsimulation model developed at the RAND Corporation by Christine Eibner to predict the effects of health policy changes at national and state levels. The model uses synthetic data on a nationally representative sample of individuals and their employers and predicts how they will react under different policy scenarios including insurance costs, coverage and government expenditure. The inclusion of behavioural response is an important aspect of this model. This model has been used in following the 2010 Patient Protection and Affordable Care Act (ACA) to estimate the effects of health reform. The model is described at <http://www.rand.org/health/projects/compare.html>.

Associate Editor Azizur Rahman points to the papers by Burden and Steel (2016) and Whitworth et al. (2016). These two papers address a key weakness of spatial microsimulation approaches, namely the lack of uncertainty estimation around the point estimates.

Finally, Associate Editor Sander van der Hoog pick a paper at the frontier of agent-based (AB) modelling. One of the main open questions facing the AB simulation community is the issue of empirical validation. Bringing AB models to the data has so far remained a problem, although there have been some recent developments in the empirical validation methodology. This is the first paper to demonstrate how a Markov Information Criterion (MIC) can be successfully applied as a method to compare different agent-based models with respect to their ability to replicate statistical features of empirical data. Barde uses the MIC as a model ranking method to evaluate three agent-based models of financial markets, by comparing multiple calibrations of the models to 24 real-world stock market indices and exchange rate series. This is an important step forward in the long-standing debate on empirical validation of ABMs.

## References

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