

Special Issue on Agent-Based Macroeconomics

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I Aim and Scope

In the last few decades lot of academic research has been devoted to the development and improvement of agent-based computational techniques to study macroeconomic issues. Agent-based models have been drawing considerable attention in that they are flexible modeling tools that allow accounting for features such as agents heterogeneity and interaction. Modeling the economy as a complex adaptive system proves to be useful in that this helps understanding and managing the abrupt changes sometimes observed (especially during big recessions or depressions) in macroeconomic variables.

However, a closer look at its actual implementation at the policy level suggests that the agent-based computational approach in macroeconomics has not reached a sufficient degree of reliability in the eyes of policymakers. Their main concerns are about the micro-foundations on which the models are built and the reliability of computer simulations compared to the standard analytical approach used in economics.

Regarding *microfoundations*, the agent-based computational approach allows to model a large range of agents, ranging from simple “rule-of-thumb” behaviors to agents which closely reproduce the actual human decision making process. This flexibility, however, implies that the set of implementable individual models increases enormously so that the researcher can incur in unsuitable choices. The debate over which means are the best to overcome these problems remains one of the key concerns of the agent-based computational economics community (Gürçan et al., 2013; Klügl, 2008).

An integrated multidisciplinary approach which involves, among others, behavioral and cognitive economics (Phan, 2004), dynamic decision making modeling (Busemeyer and Pleskac, 2009), optimal adaptive control (Sadamoto and Yamakita, 2011; Lewis and Vamvoudakis, 2010), neurosciences (Chhabra and Jacobs, 2006), experimental and mathematical psychology (Speekenbrink and Shanks, 2010) and artificial intelligence (Lee and El-Sharkawi, 2008) is desirable. The variety of models produced at the microscopic level should be evaluated by rigorous selection techniques considering their closeness with behaviors observed in real-life economic agents.

Improving the rigor of the model selection at the microeconomic level will provide a microscopic validation that coupled with the macroscopic calibration will become the solid roots for building more reliable agent-based models to be used for policy making.

II Topics

The special issue aims at bringing together the latest advances in agent-based computational macroeconomics. Authors are encouraged to submit high-quality original manuscripts addressing any topic of interest for macroeconomics by using computational techniques. Works focusing on the microfoundation phase of agent-based macroeconomic models are of particular interest for the special issue. A few examples are: (1) constructive critical discussions on the present state of the art, (2) new methodologies for improving the microfoundation stage of agent-based models such as estimation of artificial agents’ motives/behavioral rules, (3) interdisciplinary approaches to agents’ modeling, (4) the interac-

tion between macroeconomic experiments and agent-based models.

III Important Dates

Dec 15, 2014: Submission deadline
April 1, 2015: Notice of the first round review
Aug 1, 2015: Revision due
Oct 1, 2015: Final notice of acceptance / reject
Nov 15, 2015: Final manuscript due

IV Submissions

Submissions should be done through the New Mathematics and Natural Computation website: <http://nmnc.edmgr.com/> or <http://www.editorialmanager.com/nmnc/default.asp>. If you are accessing the system for the first time as an Author, please click on the above “Register Now” to register your paper submission account. Once after you are granted a user account and password, you can then use that user account and password to submit your paper. Since you are submitting a new paper, you will be asked to answer a number of questions. The first one is the type of the paper. “Research paper” is the answer. Then you will come all the way to choose one of the three provided fields. This is important. Please choose Economics. Then in the one of the final questions, you are allowed to write down some comments to the Editor-in-Chief. Please use this space to indicate that the paper is intended to submit to the special issue on agent-based macroeconomics. Submitted papers will be reviewed by at least two reviewers. The submission of a manuscript implies that it is the authors’ original unpublished work and is not being submitted for possible publication elsewhere.

V Guest Editors

Gianfranco Giulioni, Edgardo Bucciarelli, Paola D’orazio and Marcello Silvestri
Department of Philosophical, Pedagogical and Economic-Quantitative Sciences, “G. D’Annunzio” University, Viale Pindaro 42,

65127 Pescara, Italy.
Contact: g.giulioni@unich.it.

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