



UNIVERSITÀ
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DELLE MARCHE

**Agent Based Macroeconomics:
Inequality, Finance and Policy**

Supervisor: Prof. Alberto Russo

Department of Economic and Social Sciences
(DiSES) - <https://dises.univpm.it/en/home-english/>



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Research Group Description



➔ Prof. Alberto Russo (Professor of Economics)

<https://orcid.org/0000-0001-8896-109X>, Scopus: 53 papers, 1203 citations, h-index 20

- ➔ **Past job positions:** Beatriz Galindo Distinguished Researcher, Universitat Jaume I, Spain (2019-2023); Assistant and then Associate Professor, Università Politecnica delle Marche (2008-2019); Post-Doc Fellow, Università Politecnica delle Marche (2007-8); Post-Doc Fellow, Scuola Normale Superiore, Pisa (2005-2007).
- ➔ **Research interests:** Agent-Based Macroeconomics; inequality, financial fragility, crisis; inequality, innovation, and growth; fiscal and monetary policy with Heterogeneous Interacting Agents.
- ➔ **Teaching activity:** Macroeconomics (undergraduate, graduate, PhD level); Agent-Based Economics (Graduate/PhD level, invited lectures in winter/summer schools), International Finance (master).
- ➔ **Research grants:** “Exploring EXPACE. The Complementarities Between Experimental Economics and Agent-Based Computational Economics”, Valencian Community (AICO/2021/005); “Inequality, financial fragility and monetary policy in a macro agent-based framework with experimentally tested boundedly rational expectations”, Universitat Jaume I (UJI-B2020-16).
- ➔ **Current PhD students:** Alessandro Agnesi (UNIVPM), Ismaila Y Jammeh (UNIVPM), Domenico Cavicchia (UNIVPM), Mattia Leoni (Uni Roma 3), Federico Leon (Uni. Roma 3).
- ➔ **Most recent/relevant publications:**
 - Coccia S., Russo A. (2025), “Inflation, inequality and financial vulnerability: Monetary vs. fiscal policy in the face of an energy shock”, *Energy Economics*, 143, 108222.
 - Botta A., Caverzasi E., Russo A. (2024), “Same Old Song: On the macroeconomic and distributional effects of leaving a Low Interest Rate Environment”, *Structural Change and Economic Dynamics*, 69: 552-570.
 - Fierro L.E., Giri F., Russo A. (2023), “Inequality-constrained monetary policy in a financialized economy”, *Journal of Economic Behavior and Organization*, 216, 366-385
 - Botta A., Caverzasi E., Russo A. (2022), “When Complexity Meets Finance: A Contribution to the Study of the Macroeconomic Effects of Complex Financial Systems”, *Research Policy*, 52, 103990.
 - Catullo E., Gallegati M., Russo A. (2022), “Forecasting in a Complex Environment: Machine Learning Firms Expectations in a Stock Flow Consistent Agent-Based Simulation Model”, *Journal of Economic Dynamics and Control*, 139, 104405.
 - Botta A., Caverzasi E., Russo A., Gallegati M., Stiglitz J.E. (2021), “Inequality and Finance in a Rent Economy”, *Journal of Economic Behavior and Organization*, 183: 998-1029.



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Research Group Description

The Department of Economic and Social Sciences (DiSES), formerly Department of Economics, has a long tradition in economic analysis, starting from the research group that formed around Giorgio Fuà.

One of the directions of the department has regarded the analysis of *the economy as a complex system* and *agent-based modelling* (ABM).

Prof. Alberto Russo is currently supervising three *doctoral students* at DiSES/UNIVPM working on ABM applied to the following topics: multi-sector dynamics and the inequality-inflation nexus; secular stagnation, demography, and inheritance; macro-finance, housing market, and heterogeneous expectations.

The project idea is related to a research project on how inequality influences monetary policy under financialization, with Federico Giri (Associate Professor at DiSES) and Luca E. Fierro (Post-Doc Fellow at IIASA, Vienna), and can benefit from their collaboration.

A parallel project has been developed at the *Universitat Jaume I* (under Valencian Community financing), a Spanish university with which there is an active collaboration, including the Laboratory of Experimental Economics (LEE).

The part of the project on financialization is related to another idea initially developed in a paper with Alberto Botta (Greenwich University, London), Eugenio Caverzasi (University of Insubria), Mauro Gallegati (UNIVPM), and Joseph E. Stiglitz (Columbia University) and then developed in following publications.

Last but not least, one of the department's strengths is the presence of experts in microeconometrics and computational econometrics, who can support the empirical part of the project, as well as economic historians and sociologists to put the project idea in perspective.



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The Department of Economics and Social Sciences

Director: Prof. Maria Cristina Recchioni

The Department of Economics and Social Sciences (DiSES) was established on 1 July 2011 from the merger of the Department of Economics with the Historical and Sociological area of the Department of Social Sciences, and the Applied Economics area of the Department of Management and Industrial Organization.

45 professors and researchers are affiliated with the Department: 27 belong to the economics area, 8 to economic statistics, 6 to the social sciences area, and 4 to economic history. The technical and administrative staff is made up of 10 people: the administrative secretary, 5 administrative and 4 technicians.

The main research areas developed concern: Growth and Economic Development, Demography, Econometrics, International Economics and Trade, Environmental Economics, Labor Economics, Industrial, Business and Innovation Economics, Monetary Economics, Public Economics, Regional Economics, Macroeconomics, Economic Sociology, Social and Health Organizations, Economic Statistics, History of Economic Thought, and Economic History.

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- Marco Cucculelli: General Secretary of the Italian Economic Association; Top 2% Most Influential Scientists (Ranking Stanford);
- Riccardo Lucchetti: Member of the GRETl developer team



Project Idea: Agent Based Macroeconomics: Inequality, Finance, and Policy

Background: The increase in inequality and the expansion of finance are two phenomena that have characterized the evolution of our economies in the past decades, particularly from the 1980s on. After the Global Financial Crisis and the COVID pandemic, and the exceptional policy interventions implemented by governments and central banks, we are proceeding toward a new “normality”, in which huge inequalities and financialization are still pervasive features of our economies. This calls for an appropriate modelling strategy able to take into account the heterogeneity of agents (from the distribution of households’ income and wealth to firm and bank size) and the effects of interaction among heterogeneous agents (from financial contagion to imitation in consumption patterns). Agent Based Modelling (ABM) is a sound methodology to analyze complex systems as the economy in which macro properties emerge from the interaction among heterogeneous micro-entities. Though relatively new (compared to the neoclassical, mainstream approach), ABM has been applied in diverse contexts, from micro to macro issues, as for instance the analysis of growing inequality and expanding finance, and their macroeconomic and distributional effects.

Our hypothesis

The **project** aims at applying ABM to macro issues and focuses on the interplay between inequality and finance as well as on policy analysis. Our hypothesis is that increasing inequality and financial expansion cannot be considered as two separated phenomena but rather as two sides of the same coin, that is the political and economic course started around the end of the 1970s and the beginning of the 1980s. Within this framework, several issues may be investigated, including the recent surge in inflation after the energy shock, the effectiveness of monetary policy under financial securitization, inequality-constrained monetary policy, the co-evolution of economic and political systems, etc.
