A Heterogeneous-Agents NeoKeynesian model: Policy Hints for Complex Economic Systems

Massimo Salzano

DISES, Università di Salerno, Via Ponte Don Melillo, 1 84084 Fisciano, Salerno, Italy

Corresponding author e-mail: *salzano@unisa.it*

Generally, economic systems are considered complex and a large number of theoretical analyses highlights that mechanisms at the base of the behaviour of complex systems differ from the traditional ones. Vice versa, there is a diffused difficulty to apply the results of these researches for obtaining hints of economic policies. Main causes of such a situation seems to be both the impossibility to obtain hints based on the traditional optimal control approach for complex economic systems and the fact that such a system is characterized by a mixed bottom-up / top-down tie between macro-micro. A different approach must be used for these kind of systems. The objective of this work is to look for an alternative approach to the theory of decisions - robust control - and a method of modelling that highlights the twofold macro-micro tie. To such aim, we will formalize a modelling method, we will supply simple examples for the analysis of economic policies and confronts the results obtained for the case of heterogeneous agents with that obtainable using the hypothesis of representative agent. The work introduces a shell for heterogeneous-agents' simulation based both on economic equations and on the agents' interaction (an extension of the New-Keynesian model that consider heterogeneous agents). Some difference between economics and physics will be considered. On the base of this extension, we will show that it is possible to use “exploratory modelling” and “policies' landscapes” in order to obtain the required suggestions for economic policy. These suggestions are than compared with that obtained by the model that make use of the Representative Agent. The motivations of differences are considered. In this way a first step is made towards the formulation of economic policies derived from a complex approach.