

Abstract

Utilizing game theory, learning automata and reinforcement learning concepts, thesis presents a computational model (simulation) based on general equilibrium theory and classical monetary model.

Model is based on interacting Constructively Rational agents. Constructive Rationality has been introduced in current literature as machine learning based concept that allows relaxing assumptions on modeled economic agents information and expectations.

Model experiences periodical endogenous crises (Fall in both production and consumption accompanied with rise in unemployment rate). Crises are caused by firms and households adopting to a change in price and wage levels. Price and wage level adjustments are necessary for the goods and labor market to clear in the presence of technological growth.

Finally, model has good theoretical background and large potential for further development. Also, general properties of games of learning entities are examined, with special focus on sudden changes (shocks) in the game and behavior of game's players, during recovery from which rigidities can emerge.

JEL Classification D80, D83, C63, E32, C73,
Keywords Learning, Information and Knowledge,
Agent-based, Reinforcement learning,
Business cycle, Stochastic and Dynamic
Games, Simulation, Modeling

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