

Title: Complex adaptive system simulation by the heterogeneous multilayered adjustment firms

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ABSTRACT

The goal of the paper consists in investigating the stability of goods market by comparing the market composed of monolayered adjustment firms with the market composed of multilayered adjustment firms.

Autonomous decentralized Multilayered firms have two different adjustment mechanisms. The one is quantity adjustment, the other one is price adjustment. Quantity adjustment operates in short term, and price adjustment operates in medium term.

Multilayered firms focus on not global information but local information. In this paper, Local information stands for change of stock in trade and the frequency of price adjustment.

These firms don't know demand for them before they produce their goods. They are able to know demand for them by movement of stock in trade. Therefore utilization rate is passively adjusted after change of demand. As stock in trade plays a part in buffering unpredicted change of demand, all changes of stock in trade don't connect with utilization rate adjustment. In this model, when the amount of stock in trade goes beyond the upper limit of stock in trade or the lower limit of stock in trade, which firms set, firms recognize change of stock in trade as information of utilization rate adjustment. In addition, firms record the frequency of change of utilization rate. When the frequency goes beyond prices threshold that firms set, firms revise prices. As a result, we show that the goods market composed of multilayered adjustment firms is more stable than that composed of monolayered adjustment firms.