

# Institut ekonomických studií

## Fakulta sociálních věd, Universita Karlova Praha

### Referee report on the Bachelor/Master Thesis submitted to State Exam

Student Name:	Václav Hausenblas
Thesis Supervisor Name:	PhDr. Petr Švarc
Thesis Title:	Multiagentní počítačové simulace v ekonomii – model vývoje kooperace

#### Overall Evaluation:

The thesis is devoted to a very interesting and important topic of the evolution of cooperative behavior among self-interested individuals.

The cooperative behavior is persistent feature of many biological and social systems. While it is fundamental for the working of all complex economic systems the economic theory for a long time neglected this interesting topic of how such a behavior evolves from the interaction of self-interested individuals. Recently, the growing body of literature has focused on the possible mechanisms through which the cooperative behavior could emerge, persist and even prevail in the societies. The bachelor thesis of Václav Husenblas adds to this research program with new and interesting insights.

Early at the beginning author focuses on the works that try to connect the evolution of cooperative behavior with the underlying interaction structure. This choice is extremely interesting because only recently the effect of interaction structure on many social and also economic processes has been truly recognized. Author then creates a dynamical computational model of the population of artificial agents playing prisoner's dilemma game on complex networks. Prisoner's dilemma is a stylized well used representation of the tradeoff between socially optimal and self-interested choice. By this model author joins two modern approaches studying economic systems – the theory of complex networks and agent-based modeling – with the game-theoretic literature. The developed model allows author to ask a very interesting question: how the underlying interaction structure together with the different types of imitation affect the evolution of strategies played by the agents. I have to point out that this research question has not been satisfactory studied in the previous literature. Author then carefully analyzes the dynamics of the model for different combination of assumptions about the imitative behavior and interactions of agents and presents the results in clear and very readable way. The results are quite interesting and represent new insights in the explanation of cooperative behavior.

Overall, I consider the thesis of Václav Hausenblas an exceptional and highly above the average. I would recommend author to submit the article after some minor revision to the IES Working Papers Series and to one of the economic journals. **Therefore, I recommend grade A ("výborně") for the thesis defense and to nominate the thesis for the Dean's award for the distinguished student thesis.**

#### SUMMARY OF POINTS AWARDED (for the explanation of categories and scale, please, see below):

CATEGORY	POINTS
Quality of Research	30
Clarity and Readability	10
Content/Quality of Ideas	40

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Organization & Development	15
Manuscript Form	5
<b>TOTAL POINTS</b>	<b>100</b>
<b>LETTER GRADE</b>	<b>A</b>

(Signature – Defense Opponent)

<Defense Opponent's Name and Title>

Evaluated on: <date>