Report on Master Thesis

Institute of Economic Studies, Faculty of Social Sciences, Charles University in Prague

Student:	**Vít Macháček**
Advisor:	**Petr Janský**
Title of the thesis:	**The Basic Income concept in the perspective of Agent-Based modelling**

The author studies the effect of basic income introduction on price level using Lengnick's (2013) agent-based model. The thesis has a standard structure starting with literature review followed by motivation of selected methods and description of particular model ending with simulation exercise and discussion of results. In the first chapter the author describes the idea of basic income, provides some examples and outlines a possible link to price level. In the second chapter, some basic features of agent-based models are described. The third chapter discusses the model selection and describes the Lengnick's (2013) agent-based model extended with government in more detail. In the fourth chapter the author presents his results and discusses ideas for further research. Unfortunately, his current results do not show a clear relationship between the basic income introduction and price level. Moreover, his model is not capable of reproducing a high enough level of wealth inequality (to match the reality) which seems to be the crucial aspect for studying this relationship.

Manuscript form and literature
In general, the thesis is well written and structured. However, there are some typos, grammatical and punctuation errors which make the text difficult to read in some parts. But this is nothing fundamental. I am missing units in all figures. Sometimes the figure is placed a few pages after its reference. Overall, the manuscript form is good, but could be better and clearer. Objectives and research questions are well articulated. The literature is well cited and covers important recent studies.

Methods
While the modelling framework (agent-based) is appropriate for this type of analysis, a particular model used in the thesis (Lengnick, 2013) is not suitable. It is very simplified and not capable of capturing important real-world feature – a sufficiently high wealth inequality: *"The inequality issue does not allow the model to test the introduction of basic income realistically to be used by decision makers* (p. 40).*"*

Unfortunately, the author does not play more with model calibration. The author himself claims that *"profit margins are not high enough to fuel the inequalities* (p. 39).*"* This is, however, given by particular parameter values (Tab. 5.1). Moreover, the author took over most of these parameters from the original paper while he does not motivate or discusses the specific values. Different calibration might help to better match real-world inequality and to capture possible link between price level and social security reform. For example:
  (i)   Higher parameter for price speed (eq. 4.6) would allow for faster price adjustment, and consequently higher profit. Higher profit would be redistributed towards rich households and increase inequality.
  (ii) Higher parameter for maximum profit (eq. 4.4) would allow for higher profit which would be redistributed towards rich households and increase inequality.

There are missing some equations in the model description, e.g.:
  (i)   equation for profit,
  (ii) equation for price adjustment with parameter for probability of price change (θ, p. 33).

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Some parameters used in equations are not explained, e.g. v in eq. 4.6, λ in eq. 4.7, χ in eq. 4.8 or α in eq. 4.9.

Contribution

The author himself admits that the thesis did not succeed in its aim to show a clear relationship between the price level and basic income introduction. The author proves he understands the problematic of basic income and that he is able to work with a simple agent-based model. However, this thesis does not bring much new. The author was able just to replicate some basic features of the original model. He newly introduces government into the model but he was not able to create such a framework which would be applicable to study the question he asks. I appreciate the effort of the author, but I must agree with him that the thesis did not succeed in its main aim.

Possible questions for the defense:

    (i)   What would happen if the parameter for price speed (v) would be higher? How would the results probably change?

    (ii)   What would happen if the parameter for maximum profit (φ) would be higher? How would the results probably change?

Overall, I recommend the thesis to be accepted and graded „good" (2, velmi dobře).

SUMMARY OF POINTS AWARDED (for details, see below):

CATEGORY		POINTS
Literature	*(max. 20 points)*	20
Methods	*(max. 30 points)*	20
Contribution	*(max. 30 points)*	14
Manuscript Form	*(max. 20 points)*	13
TOTAL POINTS	*(max. 100 points)*	**67**
GRADE	**(1 – 2 – 3 – 4)**	**2**

NAME OF THE REFEREE: *Simona Malovaná*

DATE OF EVALUATION: *25. 8. 2016*

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Referee Signature

EXPLANATION OF CATEGORIES AND SCALE:

LITERATURE REVIEW: *The thesis demonstrates author's full understanding and command of recent literature. The author quotes relevant literature in a proper way.*

Strong	Average	Weak
20	10	0

METHODS: *The tools used are relevant to the research question being investigated, and adequate to the author's level of studies. The thesis topic is comprehensively analyzed.*

Strong	Average	Weak
30	15	0

CONTRIBUTION: *The author presents original ideas on the topic demonstrating critical thinking and ability to draw conclusions based on the knowledge of relevant theory and empirics. There is a distinct value added of the thesis.*

Strong	Average	Weak
30	15	0

MANUSCRIPT FORM: *The thesis is well structured. The student uses appropriate language and style, including academic format for graphs and tables. The text effectively refers to graphs and tables and disposes with a complete bibliography.*

Strong	Average	Weak
20	10	0

Overall grading:

TOTAL POINTS	GRADE		
81 – 100	1	= excellent	= výborně
61 – 80	2	= good	= velmi dobře
41 – 60	3	= satisfactory	= dobře
0 – 40	4	= fail	= nedoporučuji k obhajobě