

Report on Master Thesis

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

Student:	Bc. Alexander Mačejovský
Advisor:	PhDr. Jiří Kukačka, Ph.D.
Title of the thesis:	Multi-country ABM perspective on business cycles and deleveraging crises

OVERALL ASSESSMENT (provided in English, Czech, or Slovak):

Short summary

This thesis presents a detailed and partially heterodox macroeconomic analysis based on a large-scale agent-based model. The main goal is to examine the role of wage flexibility on the dynamics of the business cycle and its stabilization, the severity of economic crises, and the related impact of international trade on (small) open economies. The author primarily focuses on the phenomenon of deflation which is often neglected in the mainstream macroeconomic literature while having very complex economic consequences as it increases the real values of debts. The main findings suggest a positive role of wage stability for cycle stabilization and recovery from deflation crises for a given country and its trading partner. International trade channels are also concluded to decrease the severity of economic crises. As a supervisor, I would like to mention that the work was submitted without my knowledge and feedback. The last consultation on a rough draft took place on my initiative on February 10.

Contribution

As the author aptly summarizes, the studied topic is still open and, by mainstream economics, to some extent, a neglected topic. Thus, the author detected a gap in the current macroeconomic theory and did an outstanding job eliminating it. The author takes a well-known single-country model from the agent-based macroeconomic literature published in 2015, rewrites it from scratch in another programming language, and replicates its main results. He then extends it considerably to a two-country economic model where various macroeconomic scenarios can be analyzed, combining the relative size of countries (small vs. large), their wage setups (stable vs. flexible), international trade impact, etc. Moreover, the code is made available on GitHub to allow for replication of results and further use.

Methods

The methodology based on large agent-based Monte-Carlo simulations is very advanced and has a promising potential to tackle macroeconomic questions that remain beyond the scope of simpler DSGE macroeconomic models. Although it is generally challenging to present the complete structure of such a complex simulation-based model, the author well theoretically describes its main elements (labor market, goods market), multi-country extension, the specific numerical setup, and specification of analyzed scenarios. The author mastered the technical part (coding, debugging), replication of the original results, as well as the methodology of Monte Carlo simulations to provide statistically valid conclusions. Presentation of results is mostly done via graphics, I especially like the well-designed time series plots (see, e.g., Fig. 4. 10 and 4. 11 on pg. 43 and 44). On the other hand, I believe the box-plot graphics could have been processed better (e.g., pg. 47). Finally, the author is able to summarize a large number of numerical results from various scenarios into overall policy-relevant conclusions.

Literature

The work builds on the traditional macroeconomic literature, starting with Fisher, Keynes, or Minsky. The Introduction is already well embedded in both seminal and very recent papers. The literature review is structured into several topical sections that discuss a large body of relevant macroeconomic papers. The only point which is valued negatively is the length of sections 2.1.1 and especially 2.2 (four pages without subsections). This could have been better/more structured. The author unnecessarily loses the reader's attention here, and the effort spent may be wasted.

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Manuscript form

The thesis is written in sound English and typeset in LaTeX. The bibliography section seems complete and standardly formatted, but there are typical issues with the LaTeX automation of references: small capital letters for names (europe, fisher, keynes) or some typographical issues (Keynesâ€™TM). Referencing tables and figures is done correctly in the text. The tables and figures are well labeled and self-contained, with much additional information in the notes. Nevertheless, the legends and the description of axes are tiny and hard to read, and the format of some of the tables could be improved (e.g., Tab. 4.2), and they should not be positioned alone on a page (e.g., pg. 49, 53). Additional tables and graphics in the Appendix support the main results in the text.

Overall evaluation and suggested questions for the discussion during the defense

The assessed thesis surpasses the IES, Faculty of Social Sciences, Charles University master-level standards. Thus, I can confidently recommend it for the defense and suggest the grade A (excellent).

The results of the Urkund analysis (2%) do not indicate significant text similarity with other available sources.

Potential topic for discussion:

1. How would you summarize the main advantages and disadvantages of the agent-based macroeconomic simulations compared to various macroeconomic models covered at IES during the master studies?
2. Can you imagine an application of this model for real policy advice (for example, in a national bank or for the government)? Why yes or why not? What are the main potential obstacles to such an application?

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

CATEGORY	POINTS
<i>Contribution</i> (max. 30 points)	28
<i>Methods</i> (max. 30 points)	30
<i>Literature</i> (max. 20 points)	19
<i>Manuscript Form</i> (max. 20 points)	18
TOTAL POINTS (max. 100 points)	95
GRADE (A – B – C – D – E – F)	A

NAME OF THE REFEREE: Jiří Kukačka

DATE OF EVALUATION: 6. 9. 2022

Referee Signature

EXPLANATION OF CATEGORIES AND SCALE:

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.*

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.*

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

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.*

Overall grading:

TOTAL	GRADE
91 – 100	A
81 - 90	B
71 - 80	C
61 – 70	D
51 – 60	E
0 – 50	F