

Report on Master Thesis

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

Student: Bc. Šárka Křížková
Advisor: PhDr. Jiří Kukačka, Ph.D.
Title of the thesis: Analysis of a Behavioral New Keynesian Model

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

Please provide your assessment of each of the following four categories, summary and suggested questions for the discussion. The minimum length of the report is 300 words.

Contribution

The diploma thesis of Šárka Křížková is a very solid piece of research work clearly contributing to the now-growing behavioral macroeconomics, a field that is, however, still rather in its infancy stage as the group of devoted researchers is limited and one could date its “birth” perhaps not before the first decade of this century. With a growing interest of top-class researchers and policy makers (Gabaix, Harvard; DeGrauwe, LSE; Yellen, exFED, UC Berkeley’s, Farmer, Oxford; Stiglitz, Columbia. etc.), the field is being slowly established and leading economic models or methodological approaches are gaining larger consensus. This is the point where the contribution of Šárka considerably steps in. Recently, there have been several attempts to estimate various versions of one of a leading Behavioral New Keynesian models (DeGrauwe, 2011) using several competing methods (Simulated Method of Moments, Bayesian Estimation, Indirect Inference) and these sets of (to various extent) different estimates for the U.S. and the Euro Area macroeconomic datasets have been presented in the literature. As the number of related papers is small, e.g. a meta-analysis method to gain more general knowledge about superior model specifications is not feasible, but we can take the advantage of a simulation-based approach. Šárka thus collects all available combinations of the model setups based on up-to-date published estimates and runs an extensive simulation based analysis of the model. The comparison strategy employs the concept of stylized facts about macroeconomic time series as well as comparison with the empirical data. Such a comparison exercise has not been considered in the related literature so far and thus clearly brings a contribution at the level of the current research. The connection to the most recent research can be also “documented” by direct consultations and discussions of Sarka with two established authors of the behavioral macroeconomics estimation literature (Jang and Sacht 2016, 2017). From a large amount of numerical results Sarka was able to select and presents the most contributive ones to bring evidence for some superior model specifications of the model different for the US data and the Euro Area data. This knowledge is ready to be considered when the behavioral macroeconomic approaches are added into the analytical toolkits of policy makers. Next, Šárka originally suggest an analysis of the endogenous sources of the business cycles based correlation structures between the fractions of agents and the model output series that pseudo-empirically supports the original theoretical idea of the author of the model that changing fractions of economic agents represent the endogenous sources of business cycles in the economy.

Methods

The methodology is legitimate for a high-quality master thesis at the IES FSV UK. Over the works on the thesis Sarka mastered the theoretical essentials of both the standard DSGE approach as well as the behavioral New Keynesian model, got familiar with the tools for agent-based computational simulations in Matlab, proved that she is well able to apply standard econometric tools (Jarque-Bera, Kolmogorov-Smirnov, Anderson-Darling, Ljung-Box Q tests), and combine them into an innovative analysis. She was also able independently solve some challenges emerging during the course of research such as a conceptional incompatibility of some macroeconomic stylized facts based on variables in levels compared to model output variables in gaps. The topic is elaborated rather extensively, although some improvements in the analysis could of course have been considered, but we decided not to incorporate them based on a rough analysis of the statistical validity of presented results.

As a supervisor I need to appreciate our cooperation as very good, we regularly discussed the topic both over skype but mostly in person over the whole period (only with an “Erasmus break” in winter), Sarka was open to my suggestions but also very confident in her ideas. As this research topic strongly “blends” into my current research activities, the consultation were not only a student-supervisor cooperation routine but also enriching for my personal research thoughts.

As a final remark, I have to highlight that Sarka voluntarily decided to postpone the defense to September to finish some additional ideas and to finalise the analysis to the desired quality level even though the work would have been probably “kind of defensible” already in June.

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Literature

The literature review is very thorough and covers not only the area of the research interest but also a broad range of related topics and concepts (some of those maybe even a bit redundant or too detailed) important for the development of the behavioral modelling paradigm in the past. For instance the whole section 2.2 is devoted to experimental macroeconomics, which is an important akin field, but not directly necessary for the elaboration of the research questions. The main model in Chapter 3 is, as well as its specification collected from the literature, presented in considerable detail. Many additional comment spread across the text facilitate understanding of the topic for the reader but also demonstrate deeper understanding of the author.

Manuscript form

There is not much to criticise here, although personally I am very demanding with respect to the editing and formal quality of theses. But as all my suggestions regarding formatting were being continuously considered, I am not aware of any formal imperfections. The works reads very well, the research motivation is well stated and the final structure of chapters and sections is well-considered. Referencing to the literature is complete and correct, only the bibliography section might have been made consistent up to the level of caps (I did not notice that before now). All Tables and Figures are well self-contained and standardly formatted. Appendix contains many additional details that would disturb the reader within the main text.

Summary and suggested questions for the discussion during the defense

In case Šárka Křížová manages the defense presentation and discussion well, after consideration of a standardly high level of many master theses at IES FSV UK, I am fully confident to suggest the defense committee to assess the thesis by a very strong B, i.e. "Very good".

I also suggest the two more broad topics of my interest for the discussion:

1. Based on your experience with both approaches, how would you compare the usefulness or practical applicability of the analysed behavioral model wrt the standard DSGE approaches that central banks relatively routinely use for the policy making advises?
2. In the same vein, where do you see the biggest advantages and disadvantages of the analysed behavioral model compared to the current state-of-the-art of DSGE modelling? Can you think of any potential improvement to deal with some of the disadvantages?

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

CATEGORY	POINTS
<i>Contribution</i> (max. 30 points)	27
<i>Methods</i> (max. 30 points)	25
<i>Literature</i> (max. 20 points)	19
<i>Manuscript Form</i> (max. 20 points)	19
TOTAL POINTS (max. 100 points)	90
GRADE (A – B – C – D – E – F)	B

NAME OF THE REFEREE: Jiří Kukačka
DATE OF EVALUATION: 11. 9. 2018

Referee Signature

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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.

<i>Strong</i>	<i>Average</i>	<i>Weak</i>
30	15	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.

<i>Strong</i>	<i>Average</i>	<i>Weak</i>
30	15	0

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

<i>Strong</i>	<i>Average</i>	<i>Weak</i>
20	10	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.

<i>Strong</i>	<i>Average</i>	<i>Weak</i>
20	10	0

Overall grading:

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