Opponent's Report on Dissertation Thesis

Institute of Economic Studies, Faculty of Social Sciences, Charles University
Opletalova 26, 110 00 Praha 1, Czech Republic
Phone: +420 222 112 330, Fax: +420 222 112 304

Author:	**Ali Elminejad**
Advisor:	Prof. PhDr. Tomáš Havránek Ph.D. (IES)
Title of the Thesis:	Essays on the meta-analysis of deep parameters
Type of Defense:	**DEFENSE**
Date of Pre-Defense	April 17, 2024
Opponent**:**	Patrice Laroche PhD (Université de Lorraine)

Ali Elminejad presents a PhD thesis entitled "**Essays on the Meta-analysis of deep parameters**". This is a paper-based dissertation that aims to demonstrate the value of meta-analysis in revisiting certain parameters of several economic models.

The PhD thesis has a reasonable volume of 189 pages (including appendices). It is structured around three articles which constitute the three chapters of the thesis.

The first chapter is a chapter that presents a meta-analysis aimed at highlighting the influence of research design and publication bias on estimates of relative risk aversion based on Euler equations. In the same vein, the second chapter explores the intertemporal substitution of labor demand, using meta-analytical tools to summarize the existing literature and identify the main moderating variables that can affect the elasticity of labor demand. The third chapter provides a meta-analysis of the Calvo parameter estimated within the new Keynesian Phillips curve using a data set of 509 estimates from 40 studies published in a quarter century. The results show that the reported estimates are systematically affected by various aspects of research design and by publication bias.

These three articles represent an original contribution to the field of economics and contributes to the development of meta-analysis in economics. Each article contains all the ingredients of a well-conducted research. The scientific approach is clearly followed: research question, relevant use of extant literature, theoretical modeling, methodology, analysis and discussion of results. The reader quickly understands the issues and problems of each research project.

Overall, this doctoral work demonstrates the applicant has an excellent command of meta-analysis methodology and the core knowledge in his field of study (as can be seen from the relevant references included in the thesis). In addition to his knowledge in his field of research, the candidate proves his ability to conduct research, to formalize a problem, to set up an adequate methodological device and to analyze complex data whose handling required a lot of rigor.

This thesis meets all the criteria for a thesis that could have been defended at my University in France. There is no doubt that the three articles that make up this thesis have very strong

potential for publication in peer-reviewed academic journals in economics (In fact, two of them have already been accepted for publication, one in The Review of Economic Dynamics and the other one in Applied Economics Letters).

The manuscript is of high quality, easy to read and free of any typos (as far as I can tell, English not being my mother tongue). Beyond these formal aspects, the scope and ambition of the work led us to formulate a series of remarks and questions that the candidates answered very well during the pre-defense of his thesis.

A number of comments were made about the first article devoted to a meta-analysis of the estimation of relative risk aversion from the Euler equation. First of all, it was emphasized that this first meta-analysis had been perfectly carried out and that it scrupulously respected the quality criteria required of a good meta-analysis. This meta-analysis contains a very well-done analysis of the problems of publication bias, using recent non-linear approaches. In addition, the candidate uses a Bayesian approach to explain the heterogeneity in the estimates reported, which is particularly relevant.

During the pre-defense, the candidate is asked to explain in detail how the studies were collected and what the inclusion criteria were. On the subject of the search using Google scholar algorithms, the candidate recalled that he had compared the results of his bibliographic search with that of a search on the web of science and that he had obtained comparable results. In the end, the search for primary studies is sufficiently exhaustive to carry out a meta-analysis in the best possible conditions.

Meta-analysis like other systematic reviews is characterized by transparency, replicability, and a clear inclusion criterion. One of the ways of ensuring the transparency of the meta-analysis is to explain in detail the procedure for coding the studies, particularly when the meta-analysis was carried out by several researchers (as was the case here). Regarding the coding of data from each existing study, the applicant has not provided information on interrater reliability (IRR). However, he did indicate that the co-authors carried out the coding independently and then compared their coding to check for potential inconsistencies. This approach is often used by meta-analysts, and also explains why it is often suggested that researchers wishing to carry out a meta-analysis should do so in collaboration with others.

The exploration of heterogeneity by adopting a BMA is flawless in this study. My main comment is that the estimates may come from the same study and I wonder how the BMA procedure controls for estimation independence bias in this case. It is a question I have always wondered about and I do not have the answer. The candidate agrees, but unfortunately has no solution to this problem. Nevertheless, he indicates that it is possible to conduct a BMA including only a median estimate of each "estimation method-study". The lack of robustness of the results can be identified by comparing these estimates with those obtained with the full set of estimates. This is clearly an approach that can be used to test the robustness of meta-analytical results.

The second article deals with the intertemporal substitution in labor supply. This meta-analysis follows exactly the same methodological protocol as the first article, using a BMA approach, in which the candidate's thesis supervisor is a specialist. My initial remarks could just as easily be repeated for this second contribution. This is a particularly well-conducted meta-analysis which examines the importance of publication bias in this literature and attempts to identify the main sources of variation between the primary studies.

The third article provides a meta-analysis of the Carlo parameter estimated within the Keynesian Phillips curve. This is a meta-analysis carried out by the author himself. Unsurprisingly, he reproduced perfectly the methodological protocol of the BMA approach, demonstrating his ability to conduct research work alone. This article is shorter, mainly because of the format imposed by the journal in which it was published. That said, the essential points are there. Once again, the meta-analysis is very well done.

In this article, as in the others, we could look more closely at publication bias and, in particular, the issue of *p*-hacking. There is a whole literature on p-hacking that could have been used to go further (Brodeur et al., 2002; 2023). That said, this dimension could be the subject of future research. The candidate admits that a more in-depth examination of p-hacking is not at the heart of these meta-analyses, but that it could indeed be the subject of studies as an extension of his meta-analytical work.

Overall, my main regret is the high degree of homogeneity in the meta-analytical methods adopted by the author. It might be interesting to have a presentation (in the form of robustness tests) of meta-analytical results using the Stanley and Doucouliagos approach, for example (FEE-WLS; Random Effects, etc.). In fact, the main criticism of the Baeysian approach is that it is highly empirical. The choice of explanatory variables in regression models is not guided by theoretical considerations. At the same time, this is also true of other meta-analytical approaches. On this point, the applicant points out that he has partially provided estimates based on the WLS and FE-WLS approaches proposed by Stanley and Doucouliagos, and that the results obtained are very close to those obtained with his BMA approach.

The final version of the thesis includes an introduction and a general conclusion which did not exist in the earlier version of the manuscript. The introduction thus better links the author's various contributions and demonstrates the value of using meta-analytical tools to synthesize existing empirical literature. The general conclusion highlights the candidate's main results and the originality of his or her doctoral research.

In view of the candidate's responses to the various comments I made during the pre-defense, I feel that this work is fully in line with what is expected of doctoral research in economics.

In conclusion, this PhD thesis is a high quality work, serious and well documented, and it is without any restriction that I **recommend the thesis for defense without substantial changes**.

Date:	May 17, 2024
Opponent's Signature:	
Opponent's Affiliation:	Patrice Laroche PhD (Université de Lorraine)