

Opponent's Report on Dissertation Thesis

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Opponent:	Dr.-Ing. Jerome Geyer-Klingenberg (University of Augsburg, Germany)

I am pleased to share that Ms. Zeynalova has addressed all comments raised in the first round of review and she has great improvements to the thesis manuscript. Overall, I commend the author for the considerable effort and dedication demonstrated in revising her thesis. I am confident that Ms. Zeynalova's thesis makes a valuable contribution to the field and is well-prepared for the final defense. I recommend the thesis for defense without substantial changes.

Chapter 2 of Ms. Zeynalova's thesis "Tuition Fees and University Enrollment: A Meta-Regression Analysis" is a study in education economics that was successfully published in the Oxford Bulletin of Economics and Statistics. Ms. Zeynalova applies meta-analysis on a sample of 442 estimates from 43 primary studies to analyze one of the most frequently examined relationships in education economics, which is the connection of tuition fees and demand for higher education. The chapter, which is published in a highly reputable academic journal, examines two important aspects using meta-analysis: (a) the overrepresentation of large and negative effects, and (b) the drivers of the substantial heterogeneity in the literature. The findings of Ms. Zeynalova are novel and bring additional light into the research stream on tuition fees and demand for higher education that dates back to the 1950s. Ms. Zeynalova's application of meta-regression methods to education economics is competent, comprehensive, and rigorous. She masters to disentangle the important theoretical and empirical issues of the tuition fee and demand for higher education relation from the complex and multifaceted statistical results that the publication bias and heterogeneity analysis present. She is very successful in mastering the application of the advanced meta-regression toolkit including Bayesian Model Averaging and best practice estimation. I am impressed how carefully Ms. Zeynalova calculates and interprets the best practice estimates. Using meta-regression results correctly to address the more important theoretical questions is a very nuanced and subtle topic, one that many researchers misunderstand or get wrong. Here, Ms. Zeynalova excels, and correctly understands how her sophisticated meta-regression has important and differential implications for male students showing larger tuition elasticities as well as students at private universities. The meta-methods are all precisely applied, the results are clear and well-

described, and the discussion helps the reader to understand the value that is added by Ms. Zeynalova's analysis to the previous literature and the theoretical foundations of nexus between tuition fees and demand for higher education.

I find Chapter 3 "Publication and Attenuation Biases in Measuring Skill Substitution", published in the Review of Economics and Statistics, to be an excellent application of the state-of-the-art meta-regression analysis methods, especially for publication analysis, that could serve as an exemplar of how to conduct meta-regression in economics. The data set is rather rich with 77 empirical studies reporting 682 estimates. Ms. Zeynalova's second application of meta-regression is, again, quite comprehensive, well-researched, and very nicely stated. As compared to the previous chapter, this meta-regression is even more advanced using elasticities as effect sizes and applying several non-linear tests for publication bias analysis. I am very impressed how Ms. Zeynalova applies the most sophisticated and recently developed tests for publication bias and excels in the interpretation of the results. She is very successful in deriving key findings from her tests on the two biases that affect the inverse elasticity (publication bias stemming from underreporting of small estimates) and attenuation bias (stemming from measurement error). She shows a great deal of judgement and deep knowledge of the relevant literature in her choices of the moderator variables to code and analyze using Bayesian Model Averaging. I have personally conducted several similar meta-regression analyses and reviewed several meta-regression analyses in economics and business. I can say that Chapter 3 compares favourably with the best.

Lastly, I should comment on Chapter 4 „Expected Returns to Higher Education in Russia after Unified State Exam Reform“. In this chapter, Ms. Zeynalova approaches another aspect of education economics by taking advantage of a policy change by the introduction of the unified state exam in Russia back in 2009. Ms. Zeynalova investigates the effect of the new testing procedure on the return of education by applying advanced statistical methods for quasi-experimental testing. She finds mixed results, while there seems to be an overall positive effect in specific contexts. As compared to the previous two chapters, this is an original primary study that nicely illustrates that Ms. Zeynalova is not only an experienced scholar in the field of meta-analysis research, but she is also able to successfully contribute to research by conducting original primary research. In line with latest seminal research papers in economics, she applies difference-in-differences testing as a quasi-experimental testing approach, which allows to tackle endogeneity issues, and therefore has advantages over standard panel regression analysis.

In summary, I am very impressed by Ms. Zeynalova's research. Her thesis represents meta-regression analysis research at the highest level, worthy of publication in top-ranked economics journals. It would without any doubt also be a defensible and excellent thesis at my university (University of Augsburg, Applied Data Analysis Group). Thank you for allowing me to review this thesis, and I am available for any further discussion or clarification.

Sincerely,
Jerome Geyer-Klingenberg

Date:	May 16, 2023
Opponent's Signature:	
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