

Opponent's Report on Dissertation Thesis

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Title of the Thesis:	Essays on the Impact of Technological Change on Economic Structure
Type of Defense:	DEFENSE
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Opponent:	Matěj Bajgar M.Sc. DPhil. (IES)

Overall comments on the dissertation

The dissertation explores the role of R&D and participation in global value chains (GVC) on economic performance. It consists of three substantive chapters, each of which represents an independent researcher paper. Two of the three substantive chapters have been published in academic journals (indexed in the Web of Science). The dissertation is empirical in nature and studies sources of knowledge with a potential to increase productivity, stemming either from R&D (Papers 1 and 3) or from GVC participation (Papers 2 and 3).

Methodologically, it is based on industry-level data either for Czechia (Papers 1 and 3) or for multiple countries (Paper 2). The estimation specification is derived from a log version of a Cobb-Douglas production function. The estimation techniques used are relatively simple but transparent and appropriately used, relying on OLS panel regressions with unit and year fixed effects.

The dissertation looks at topics where an extensive academic literature already exists, and it follows the literature in its motivation and methodology. All papers, however, make distinct novel contributions to the literature, primarily by exploring heterogeneity in the estimated effects and, consequently, giving a richer picture and allowing a more detailed interpretation than previous studies.

The principle weakness of all papers is that they do not contain an explicit identification strategy and are not able to exclude the possibility of reverse causality or the results being driven by a third factor, and consequently their results only represent conditional correlations and do not have causal interpretation. That said, this shortcoming concerns a vast majority of papers in the relevant literatures, and it is transparently and extensively discussed by the author. It is also helpful that, where applicable, the author discusses related papers that give an indication of the magnitude and direction of the biases that we can expect in the estimates relative to causal effects.

The dissertation demonstrates good knowledge of relevant scientific literature, which is appropriately cited throughout the dissertation.


Comments on changes compared to the pre-defense version

The author has taken great care to address and incorporate comments made by the three reviewers. The reviewers' comments and detailed responses by the author are now included at the end of the thesis. Several categories of changes have been made in the manuscript:

1. **Changes to the introductory chapter** – In response to the comments of the external reviewers, the introductory chapter has been substantially rewritten and extended (its length has roughly doubled). The chapter now more successfully introduces the topic and the key concepts to a broader audience and covers more of the key literature.
2. **Spelling out the motivation and contribution** – In response to multiple comments by all reviewers, the individual substantive chapters now more explicitly spell out their unique contribution to existing literature. Motivation for the research and for various choices has also been extended. At the same time, in some places the motivation has been streamlined, in particular by dropping the explicit hypotheses which had been stated in the second substantive chapter but not directly tested in the subsequent empirical analysis.
3. **Correcting mistakes** – The reviewers' comments point out several mistakes in the text, tables and figures, such as swapped coefficients for capital and labour in the second substantive chapter. The mistakes are corrected in the present version of the thesis.
4. **Additional discussion of methodological choices** – At various parts of the thesis, the reviewers have questioned various claims, interpretations and methodological choices. These points have all been addressed, mostly by minor adjustments in the text or in added footnotes, and at a few places also by some (relatively minor) changes to the analysis and the results.

Summary

I have enjoyed reading the dissertation, and I have learned from it both in terms of its methodology and its findings. I also appreciate the care with which the author addressed all comments raised by the referees. For these reasons, **I recommend the thesis for defense without substantial changes.**

Date:	29 th September 2023
Opponent's Signature:	
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