

HABILITATION THESIS REVIEWER'S REPORT

Masaryk University

Applicant	Lukáš Lafférs
Habilitation thesis	Essays in econometrics of model uncertainty
Reviewer	Michael C. Knaus, PhD
Reviewer's home unit, institution	School of Business and Economics, University of Tübingen

The habilitation contains nice contributions to causal inference in econometrics. Chapter one takes existing causal parameters of interests and their identification results from the literature and innovates on the estimation side of things building on the powerful and recently very popular double machine learning framework. The considered mediation and dynamic treatment settings require non-trivial extensions and therefore constitute a valuable contribution to the literature.

Chapter two considers cases where the standard identifying assumptions are unlikely to hold and provides bounds relaxing them. This is in contrast to the first chapter where the (often very strong) identifying assumptions were taken for granted. The computational approach of formulating the calculation of the bounds as linear program is not obvious but an elegant. The two papers provide therefore a valuable contribution to the active but still niche literature on bounds that (for whatever reason) not yet found its way into the standard toolbox of applied economists.

Overall, both chapters demonstrate the ability of the candidate to do innovative methodological work in econometrics.

Reviewer's questions for the habilitation thesis defence:

Chapter 1:

- The limited knowledge about the properties of predictions of the nested conditional means is identified as a shortcoming. I completely agree that this is not satisfactory. Is there at least some high-level intuition or Monte Carlo evidence that the required convergence rates of these nuisance parameters can be achieved?

Chapter 1.2:

- The existing identification results cover also settings with more than two periods. Why is the paper limited to the two periods case?

Chapter 2:

- What do we know about the validity of the bootstrap strategy entertained?

Overall:

Relatively recently the paper Chernozhukov, V., Cinelli, C., Newey, W., Sharma, A., & Syrgkanis, V. (2022) "Long story short: Omitted variable bias in causal machine learning (No. w30302)" combines double machine learning and sensitivity/bounds analysis.

- Could you integrate the double machine learning technology also into the settings of chapter two?
- Do you think that the combination of double machine learning and bounds will help the bounds literature to find their way out of the methodological niche into applied work?

Conclusion

The habilitation thesis entitled *Essays in econometrics of model uncertainty* by Lukáš Lafférs **fulfils** requirements expected of a habilitation thesis in the field of Economics.

Date: 19.01.2024

Signature: