Report on Bachelor / Master Thesis

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

Student:	**Mgr. Alžběta Křížková**
Advisor:	**Prof. PhDr. Tomáš Havránek, Ph.D.**
Title of the thesis:	**Marginal Abatement Costs of Greenhouse Gas Emissions: A Meta-Analysis**

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

Short summary

The abatement costs of greenhouse gas emissions constitute a key (perhaps *the* key?) policy question of environmental economics these days. The existing estimates of the costs in question vary widely because of differences in data, methods, and generally in the context in which they are obtained. In consequence, they provide little guidance for policy makers and researchers who need to build on reliable and robust estimates of abatement costs. Several meta-analyses of this stream of literature have been conducted, but this thesis is the first one to control for publication bias and model uncertainty. So the thesis constitutes an important input to the research literature and, after revisions, could be published in a solid international journal.

Contribution

As I have noted, the contribution of the thesis is clear: i) it is the first one to control for publication bias in the literature on abatement, ii) it is the first one to account for model uncertainty. Overall the meta-analysis here is conducted meticulously. I have no additional comments, because the author has consulted with me on a regular basis, and all of my previous comments were incorporated. Of course a meta-analysis such as this one is not the final word on the topic, but it significantly adds to our knowledge and will be useful to many people in the profession.

Methods

The author uses up-to-date meta-analysis methods. In particular, I appreciate the following: WAAP (Ioannidis et al., Economic Journal 2017), selection model (Andrews and Kasy, AER 2019), stem-based technique (Furukawa, MIT dissertation 2021), Bayesian and frequentist model averaging. Importantly, the estimates collected by the author are not classical regression estimates, for which we can expect independence of estimates and standard errors in the absence of publication bias. To address this problem, the author uses the inverse of the square root of the number of observations as an instrument for the standard errors. All of these techniques are applied and commented on correctly.

Literature

This is a meta-analysis, so a comprehensive treatment of literature is a must, and the author delivers.

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Manuscript form

The thesis is written in competent English and typeset nicely in LaTeX.

Overall evaluation and suggested questions for the discussion during the defense

In my view, the thesis fulfills the requirements for a master's thesis at IES, Faculty of Social Sciences, Charles University, I recommend it for the defense and suggest a grade A. The results of the Urkund analysis do not indicate significant text similarity with other available sources.

Question for defense: the literature shows much more heterogeneity after 2010. Why is this the case? How would you interpret the outliers in the funnel plot (Figure 6.1)?

Well done overall, congratulations!

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

CATEGORY	POINTS
Contribution (max. 30 points)	28
Methods (max. 30 points)	29
Literature (max. 20 points)	20
Manuscript Form (max. 20 points)	19
TOTAL POINTS (max. 100 points)	**96**
GRADE (A – B – C – D – E – F)	**A**

NAME OF THE REFEREE: Prof. PhDr. Tomáš Havránek, Ph.D.

DATE OF EVALUATION: **May 9, 2022**

digitally signed
Tomas Havranek

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Referee Signature

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.*

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.*

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

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.*

Overall grading:

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