

Report on Bachelor / Master Thesis

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

Student:	Jana Možíšová
Advisor:	Mgr. Milan Ščasný, Ph.D.
Title of the thesis:	Water footprint of consumption of the Czech households

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

Please provide a short summary of the thesis, your assessment of each of the four key categories, and an overall evaluation and suggested questions for the discussion. The minimum length of the report is 300 words.

Short summary

The thesis highlights the global concern of water scarcity extending beyond traditional regions, impacting Europe and North America as well. With a growing population, the pressure on water resources intensifies, necessitating behavioral shifts. The concept of water footprint was introduced to monitor water use in commodity production, aiding in identifying critical consumption patterns for sustainable changes with a focus on Czech households. The thesis employs the hybrid environmentally extended multi-regional input-output approach, to calculate the water footprint. The research aims to identify influential consumption groups and their average water intensities, revealing food consumption as a major contributor. The study indicates varying water footprint distribution across households, highlighting the links between expenditures and water footprints.

Contribution

The methodology employed in the current study closely resembles that of Mach et al. (2018), (albeit with notable differences in terms of depth and extent; the paper by Mach et al is more thorough) with a shift in the dependent variable from household emissions to water footprint. The resemblance is striking, as the mathematical procedures, data sources, and even the tables and graphs seem to be almost a direct replication from the earlier paper. In Mach et al. (2018), the authors utilized a hybrid environmentally extended multi-regional input-output method to calculate household emissions, and in this thesis, the same approach is applied to compute the water footprint. The process of linking expenditure data with the hybrid EE MRIO model, as well as the methodology for bridging different classification systems, is essentially replicated. While the adaptation from emissions to water footprint may be a logical extension, it raises concerns about originality and the extent of critical thinking applied to the methodology, and the thesis in general.

Methods

Furthermore, a heavy reliance on EXIOBASE and the single-region Symmetric Input-Output Table for the Czech Republic, may potentially lead to an overemphasis on the accuracy of these data sources. Additionally, the choice to use a linear regression model with one dependent variable (this is what I assume from Equation in section 2.2.3 (page 21), and the results presented in Table 3 on page 26) to analyze the relationship between household expenditures and water footprint might oversimplify the underlying dynamics and disregards potential nonlinear interactions, and other factors effecting the water footprint.

Moreover, the lack of methodological innovation or evolution in the adaptation of Mach et al.'s (2018) framework to a **new context** raises questions about the depth of theoretical exploration and the original contribution of this research. The substantial overlap between the two studies may challenge the thesis's academic merit, potentially requiring a more rigorous engagement with existing literature and a clearer articulation of novel insights.

Furthermore, the Thesis does not include the information on the imported products (Z_{imp}) in its technology coefficient matrix A_{dom} (the last equation on page 18) whereas the paper by Mach et al

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(2018) includes this information in their analysis (Equation 2 in the Mach et al (2018)). I am not sure whether this is a typo or Z_{imp} was left on purpose due to change in notation or methods. Not enough discussion is presented on that. This should be clarified on the defense.

Literature

Literature review is adequately done.

Manuscript form

The Thesis adheres to the standard form.

Overall evaluation and suggested questions for the discussion during the defense

In my view, the thesis fulfills the requirements for a bachelor thesis at IES, Faculty of Social Sciences, Charles University, I recommend it for the defense and suggest a grade B. I do not give a higher grade due to my points outliend in the "Methods" section. However, I am not an expert in that particular field so **if, the student can adequately address, and debate the outlined drawbacks and explain some points regarding the mathematcial exposition** (why for instance matrix A_{dom} does not include imported products (Z_{imp}), and that it was Not simply left out (typo) in which case this probabaly indicates that the student was simply copying the Equations from Mach et al (2018) mechanically), **then I would recommend A.**

The results of the Turnitin analysis do not indicate significant text similarity with other available sources

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

CATEGORY	POINTS
Contribution (max. 30 points)	23
Methods (max. 30 points)	25
Literature (max. 20 points)	20
Manuscript Form (max. 20 points)	20
TOTAL POINTS (max. 100 points)	88
GRADE (A – B – C – D – E – F)	B

NAME OF THE REFEREE: Salim Turdaliev

DATE OF EVALUATION: 08.08.2023

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Digitally signed (08.08.2023)
Salim Turdaliev

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