

Report on Bachelor Thesis

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

Student:	Martin Moldan
Advisor:	RNDr. Michal Červinka, Ph.D.
Title of the thesis:	Relationship of Economic Growth and Pollution in the Czech Republic

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

Please provide your assessment of each of the following four categories, summary and suggested questions for the discussion. The minimum length of the report is 300 words.

The center point of the thesis are two variables, the amount of air pollutants and growth of GDP. Although we struggle with various types of air pollution substances since early history of human kind, empirical observations suggest that with a growing economy, the level of pollutants need not necessarily increase. Rather, analogously to a relationship of income per capita and economic inequality - formally modelled as the so-called Kuznets curve - the so-called Environmental Kuznets curve (EKC) in the form of a quadratic concave function with a unique turning point was suggested in early 90s to model relationship between income per capita and the level of environmental degradation. The latter can be measured via concentrations of numerous water and air pollutants or their emissions. The hypothesis connected to the shape of EKC thus states that for developing countries, there is a growing rate of environmental degradation connected to the economic growth, while from a certain value of income per capita, the environmental degradation starts to slow down with further economic growth.

The aim of this thesis it to analyze real measurements of Czech Hydrometeorological Institute for certain air pollutants, namely SO₂ and NO_x, between 1995 and 2017 in the regions of the Czech Republic and possibly validate the EKC hypothesis for the Czech Republic using the panel data analysis.

Contribution

The author needed to approach the Czech Hydrometeorological Institute in order to gain the data set on investigated air pollutants and had to process a data set for 14 regions spanning 23 years between 1995 and 2017. The choice of the suitable variables and methods was consulted both with the lecturers of statistics and econometrics classes at IES and with leading researchers of environmental science at Charles University. The author gains a result which suggests that the EKC hypothesis may not valid for the observed time period and selected pollutants, which is in line with studies focusing on other countries. Due to various reasons such as changes to methodology of measuring pollutants before 1995 (and quality of such measurements) and economic regime of the country before and after 1989, the author was thus unable to identify the exact turning point. Nevertheless, this manuscript appears to be the first rigorous study for the Czech Republic.

As such, I am even convinced that an edited version of this thesis can be published in a suitable journal focusing on environmental economics.

Methods

The main methodology used in this thesis is the panel data analysis. The theory of the standard methods are briefly described and the author subsequently comments on a particular choice (in favor of the fixed effects model). The used methods are appropriate for a student in the final year of bachelor studies at IES.

Report on Bachelor Thesis

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

Student:	Martin Moldan
Advisor:	RNDr. Michal Červinka, Ph.D.
Title of the thesis:	Relationship of Economic Growth and Pollution in the Czech Republic

Literature

The author provides adequate list of relevant literature, focusing mainly on peer reviewed literature sources (books or papers in respectable journals). I personally do not favor point-number style to state the volume and issue of the journal, but besides that, the list of used references follows a flawless citation style.

Manuscript form

I have not found any grammar mistakes or typos. The thesis is well structured and the author builds up the topic and provide smooth transitions between the main sections of the thesis so that the reader can proceed quickly to the main results.

Summary and suggested questions for the discussion during the defense

This is a skillfully written manuscript which fully delivers on the goals formulated in the thesis proposal and even has a potential to be published in a refereed journal. As such, it is my honor to suggest **grade A**.

Although the author explains thoroughly his motivation for not including CO₂ emissions in his analysis, I find it necessary for the author to comment on that during the defence. Specifically, since CO₂ is measured (indirectly) by calculating its emissions, what would be the main changes to the philosophy of the proposed panel data model? Would the same theoretical model even be appropriate? To what extent does it make sense to consider a model of (just) a single country opposed to a model including all countries/regions of Europe?

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

CATEGORY	POINTS
<i>Contribution (max. 30 points)</i>	30
<i>Methods (max. 30 points)</i>	28
<i>Literature (max. 20 points)</i>	19
<i>Manuscript Form (max. 20 points)</i>	20
TOTAL POINTS (max. 100 points)	97
GRADE (A – B – C – D – E – F)	A

NAME OF THE REFEREE: Michal Červinka

DATE OF EVALUATION: May 31, 2019

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.*

<i>Strong</i>	<i>Average</i>	<i>Weak</i>
30	15	0

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.*

<i>Strong</i>	<i>Average</i>	<i>Weak</i>
30	15	0

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

<i>Strong</i>	<i>Average</i>	<i>Weak</i>
20	10	0

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.*

<i>Strong</i>	<i>Average</i>	<i>Weak</i>
20	10	0

Overall grading:

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