

Report on Bachelor / Master Thesis

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

Student:	Michaela Koscova
Advisor:	Karel Janda
Title of the thesis:	The merit order effect of photovoltaic generation in Slovakia

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

Please provide your assessment of each of the following four categories. The minimum length of the report is 300 words.

This is a report of advisor, provided by Karel Janda.

Contribution

The evaluated bachelor thesis fully accomplished its ambition to provide an overview of Slovak electricity energy market with focus on photovoltaic. As opposed to relatively well covered Czech energy market, the international-level journal quality economic academic writings on Slovak energy and Slovak photovoltaics are much thinner, very much underdeveloped. So this thesis nicely fits this up to now empty niche.

In addition to this descriptive part the thesis contains well integrated and substantial econometric section dealing with merit order effect of Slovak photovoltaic and a simple economic comparison of direct economic costs and benefits of Slovak photovoltaic support. The merit order econometric estimation is based on Lunackova et al. (2017) and Cludius et al. (2014). Similar investigation was done also by Janda and Tuma (2016), however that project (based on L. Tuma diploma thesis) was much more complex and more technically ambitious. The first estimation of Slovak photovoltaic merit order effect is a valuable original empirical contribution to the relevant literature.

During the thesis defense the author should focus on explanation what makes Slovakia energy market and its photovoltaics a globally interesting case. She should elaborate on interesting composition of Slovak electricity energy production mix containing very high share of nuclear energy together with very low share of fossil fuels (lower than the combined share of widely defined renewables= hydro+ solar + biomass) and a decent share of photovoltaics, where in the photovoltaic Watt per capita ranking Slovakia holds 15th position in Europe and 17th in the world, being slightly above the level of countries like Austria, Spain or France.

<https://en.wikipedia.org/wiki/Solar_energy_in_the_European_Union>

Also she should clearly specify what is covered in the residual category Other energy sources, since this category is 3 times as big as photovoltaics.

Methods

The descriptive part dealing with Slovak energy is fully properly conducted. The econometric part is done in the most simple way. It is on lower level of econometric sophistication than recent diploma thesis of L. Tuma or relevant chapter of PhD dissertation of P. Lunackova. However, bearing in mind that this is just a bachelor thesis, I consider its econometric simplicity fully O.K. Even with this econometric simplicity, it is technically on the level of the relevant section in Cludius et al. (2014), which was published in Energy Economics.

I missed clear statement which variables are transformed by IHS transformation. Are IHS transformed only prices or other variables too? I would expect that everything which is usually taken as log (for example in Cludius (2014 and other related papers) will be IHS transformed here.

Was testing (Dickey Fuller etc.) done on IHS transformed data?

Literature

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The thesis demonstrates author's full understanding and command of recent literature dealing with Slovak energy and with merit order effect of photovoltaics. The author quotes relevant literature in a proper way. The thesis contains all the needed relevant literature. My numerous remarks with respect to mistakes and omission in the List of literature are covered in the Manuscript form section of this report.

Manuscript form

Given that this thesis was a first encounter of its author with a Latex typesetting system, I am essentially satisfied with current form of this thesis.

While the descriptive part of the paper is very well written, there are some deficiencies mainly in the presentation of econometrical results and in the list of references. There deficiencies were cause mainly by the thesis being finished on the last minutes. Therefore the list of references and the tables with final econometrical results did not go through my preliminary scrutiny and through a process of my corrections and revisions.

The notation and presentation of the econometric results in the tables could be improved.

Why there is no coefficient for time trend in the only equation in the bachelor thesis? Why time trend in this equation is written by normal font (not i italics as other variables and coefficients)?

Missing JEL codes

Literature:

The student consistently did not bother with including number of article (the number of journal issue, where the article was published) in her bib file. This was obviously driven by the fact that majority references are from Energy Policy, where only volumes exist, not numbers.

While the majority of items uses small letter in the titles of articles, there are (inconsistently) a few items with capital letters:

John Burbidge, Lonnie Magee, and Leslie Robb. Alternative Transformations to Handle Extreme Values of the Dependent Variable. *Journal of the American Statistical Association*, 83:123-127, 1988.

Terri Friedline, Rainier Masa, and Gina Chowa. *Transforming Wealth Using the Inverse Hyperbolic Sine and Splines to Predict Youth's Math Achievement*. The University of Kansas, 2012.

Norman Johnson. Systems of Frequency Curves Generated by Methods of Translation. *Biometrika*, 36:149-176, 1949.

James MacKinnon and Lonnie Magee. Transforming the Dependent Variable in Regression Models. *International Economic Review*, 31:315-339, 1990.

Marco Nicolosi and Michaela Fursch. The Impact of an increasing share of RES-E on the Conventional Power Market - The Example of Germany.

Zeitschrift fur Energiewirtschaft, 33:246-254, 2009. (this one is really ugly, with some lower cases and some upper cases)

Amy O'Mahoney and Eleanor Denny. The Merit Order Effect of Wind Generation on the Irish Electricity Market. Munich Personal RePEc Archive, 2011. (Also notice that MPRA is not consistent with MPRA in Janda and Tuma item.)

Karen Pence. The Role of Wealth Transformations: An Application to Estimating the Effect of Tax Incentives on Saving. *The B.E. Journal of Economic Analysis & Policy*, 5, 2006.

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Lion Hirth. What caused the drop in European electricity prices? a factor decomposition analysis. 2016. (Should be capital A after the question mark. Also some more detailed characterization of the type of paper is missing.)

Ragnar Lofstedt. Are renewables an alternative to nuclear power? an analysis of the Austria/Slovakia discussions. Energy Policy, 36:2226-2233, 2008. (Should be capital A after the question mark.)

Stine Grenaa Jensen and Klaus Skytte. Interactions between the power and green certificate markets. Energy policy, 30:425-435, 2002. (policy should be with capital P).

Matus Misik. On the way towards the energy union: Position of Austria, the Czech Republic and Slovakia towards external energy security integration. Energy, 111:68-81, 2016. (missing capitalization of the names of countries)

Technical report, techreport is inconsistent in the 3 RONI items.

RONI. Porovnanie podpory OZE a vykupnych cien elektriny vyrobenej z OZE v okolitych krajinach. Technical report, Regulatory O_ce for Network Industries Slovakia, 2014.

RONI. Porovnanie podpory OZE a vykupnych cien elektriny vyrobenej z OZE v okolitych krajinach. techreport, Regulatory O_ce for Network Industries Slovakia, 2016a.

RONI. National report 2015. techreport, Regulatory O_ce for Network Industries Slovakia, 2016b.

SE. Annual report 2015. techreport, Slovenske elektrarne, a.s., 2016. (techreport is not really good English word)

SkREA. Pv in Slovakia. Slovak RE Agency, 2008. (PV and Slovakia should be capitalized)

WEC. World Energy Council. URL worldenergy.org. (I guess that correct capitalization is World Energy Council)

I recommend the thesis for defense.

In the case of successful defense, I recommend the grade „excellent“ (grade 1).

References:

Johanna Cludius, Hauke Hermann, Felix Matthes, and Verena Graichen. The merit order effect of wind and photovoltaic electricity generation in Germany 2008-2016: Estimation and distributional implications. Energy Economics, 44:302-313, 2014.

Karel Janda and Ladislav Tuma. Market viability of photovoltaic plants: Merit order effect approach. Munich Personal RePEc Archive, 2016.

Petra Lunackova, Jan Prusa, and Karel Janda. The merit order effect of Czech photovoltaic plants. Energy Policy, 106:138-147, 2017.

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

CATEGORY	POINTS
<i>Contribution (max. 30 points)</i>	25
<i>Methods (max. 30 points)</i>	27
<i>Literature (max. 20 points)</i>	20
<i>Manuscript Form (max. 20 points)</i>	17
TOTAL POINTS (max. 100 points)	89
GRADE (1 – 2 – 3 – 4)	1

NAME OF THE REFEREE: Karel Janda
DATE OF EVALUATION: May 26, 2017

Referee Signature

EXPLANATION OF CATEGORIES AND SCALE:

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

Strong Average Weak
20 10 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.*

Strong Average Weak
30 15 0

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.*

Strong Average Weak
30 15 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.*

Strong Average Weak
20 10 0

Overall grading:

TOTAL POINTS	GRADE		
81 – 100	1	= excellent	= výborně
61 – 80	2	= good	= velmi dobře
41 – 60	3	= satisfactory	= dobře
0 – 40	4	= fail	= nedoporučuji k obhajobě