

Report on Master Thesis

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

Student:	Bc. Ing. Vladimír Kunc
Advisor:	doc. PhDr. Ladislav Křišťoufek, Ph.D.
Title of the thesis:	Comparison of different models for forecasting of Czech electricity market

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.

The main objective of the thesis is to perform a horserace of forecasting methods on the dataset of the Czech electricity (hourly) prices. The horserace is very wide, starting from standard OLS regression, through support vector regression, decision trees, ridge regression, Lasso variants, least angle regression, neural networks, random forests, Bayesian alternatives, and some others. The thesis is thus in a way an exercise in data mining of a specific dataset. However, it needs to be noted that from the technical perspective, the thesis delivers everything that is needed – discussion of the parameters selection, splitting periods into training, calibration and testing, proper comparison of methods (Diebold-Mariano test as a complement to MAE and RMSE). It only lacks in the presentation of the results, which is always challenging in this type of studies, structure of the text, and quite frequent typos and grammatical mistakes.

Contribution

As also explained by the author, the electricity markets have become quite a popular target of empirical research in the last few years due to relatively good data availability and challenging complexity. As such, the contribution is mainly in the dataset/market selection – the Czech market is not that popular in the published research – and the width of utilized methods. As mentioned in the introducing paragraph of this report, the thesis delivers what it promises and as such, it contributes to the current flow of literature. Nevertheless, one might get a feeling of a rather engineering work with only a little of focus put on some interpretation of the results.

Methods

The methods are all described in a sufficient detail. The same true for performance measures used in the thesis. As for the level of the used methods, most of them are not a part of standard IES curriculum, even though some of them are part of the *Data Science* course. Either way, the used methods are very advanced.

Literature

The thesis uses a large set of research papers as a basis. The literature review is approached as a table, which is then slightly described. However, Table 2.1 could have been much better. Why not put it as a landscape table and include some more details such as actual results and proper references? The referencing style (as numbers) is not standard for an economics text. I am personally fine with it but it needs to be done properly, e.g. it is fine to write "...and this method has been found to be the best performing one [1]" but not "...but [111] claims that some other one is better". The latter should be something like "... but Kunc [111] claims that some other one is better".

Manuscript form

Manuscript form is fine but it has some weaknesses. First of all, there are many typos and grammatical mistakes. Just the beginning of the abstract is alarming. Second, the number of subsections is too high. I understand there are many methods that need to be described but some more appropriate approach could have been taken. Third, there are seemingly random blank pages in the text (most likely optimized for two-sided printing – but this is a thesis). Fourth, the number of graphs is very high, which would be fine but their placing in the text is certainly not optimal. In addition,

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some graphs would strongly benefit from more detailed captions, e.g. Fig. 4.6. And fifth, single spacing is fine but why to have 1.5 spacing in the table captions?

Overall, the thesis is ambitious and delivers the promised results. Unfortunately, the presentation is not optimal and it seems that the final version of the thesis was written in a hurry. Nevertheless, I believe that the thesis still passes for grade A (a total of 86 points).

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

CATEGORY	POINTS
Contribution (max. 30 points)	27
Methods (max. 30 points)	30
Literature (max. 20 points)	17
Manuscript Form (max. 20 points)	12
TOTAL POINTS (max. 100 points)	86
GRADE (1 – 2 – 3 – 4)	1

NAME OF THE REFEREE: doc. PhDr. Ladislav Křišťoufek, Ph.D.

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Digitally signed by Ladislav Křišťoufek
DN: cn=Ladislav Křišťoufek, o=Faculty of
Social Sciences, Charles University in
Prague, ou=Institute of Economic Studies,
email=ladislav.kristoufek@fsv.cuni.cz,
c=CZ
Date: 2017.09.06 10:46:12 +02'00'

Referee Signature