

Report on Bachelor / Master Thesis

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

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| Student: | Bystřický Vojtěch |
| Advisor: | doc. PhDr. Křištofek Ladislav, Ph.D. |
| Title of the thesis: | Connection between Fuel Prices and Demand for Electric and Hybrid Cars |

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

Contribution

The thesis contributes to the discussion of the relationship between gasoline price and demand for vehicles with alternative fuels. It reasserts previously published results and extends them to new data period, as the market for EV vehicles has developed quite substantially. The thesis investigates the relationship mentioned above in the US and continues with a more elaborate model for the market in Europe. The conclusions are sound, logical and methodologically valid.

Methods

Chosen methods have been known and well studied in the literature and author gives a good overview of the OLS, its panel alternative and its basic properties as well as remedies with respect to the nature of the data.

It might benefit the methodological section to include more precise definitions of key terms, such as the definition of weak stationarity.

Also sometimes there are little imprecise, or too conclusive, statements, such as “rejecting the null would lead to the conclusion that the tested series is stationary”. The author might consider the keep the phrasing in the probabilistic view of things – statistical tests reject or not reject hypothesis at some level of confidence; they do not prove anything!

The comments on methods, their use and conclusions are sound. The reader would welcome a more explicit link between the two models.

Literature

The review is quite comprehensive, and lots of it is concerned with the history and technical details of electric cars. It might be beneficial to slim this part down in favour of econometrics-related literature on the topics, which, however, is included. In general, the literature review section motivates the choice of variables and connects well to the mentioned sources.

Manuscript form

The text is logical and quite well written in an appropriate language. It connects findings to the existing literature well.

In the abstract you refer to your work as „paper“ and „thesis“, and it is a little confusing when you use „this paper“ for the first time as it seems like a reference to some else’s work.

Sometimes there are non-academic phrases, mainly related to the authors’ comments; „the author thinks it would be useful to examine...“, „factors which are also believed to have an impact“, „author would like to test/present this“, „the author’s belief is that...“

Also, there are some strange tenses „this paper has proven“, „the first model would be designed“. In those cases, it is more suitable to use simple present tenses.

It is not necessary to introduce referencing such as „let the author use the words of Osono et al.“.

Also, the introductions to sections 2,3,4,5 and 6 are rather unnecessary as the reader will expect that „Discussion“ section will be about discussing the results and there is no need to prepare for it with a paragraph.

In Figure 1, you refer to the years 2008 and 2012, but the ticks go by five years starting in 2005, so it is hard to know where exactly those are. It might be beneficial to plot those together or at least put the figures next to each other as they are the basis for the first model, and the reader could get some idea

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about the market dynamics. Also, it would benefit the thesis if it included plots for the variables in the second model (EU data).

The regression outputs would benefit from better formatting, such as removing unnecessary significant digits.

Summary and suggested questions for the discussion during the defense

In conclusion, the thesis is a solid piece of work attaining the standard of the BSc theses at the Institute and thus deserves a successful defense. For the defense I suggest to elaborate on the following topics :

Why not explaining the total of sold cars instead of just Prius? Why is it necessary to distinguish between models? Why not since 1997 when Prius production started?

Have you considered past behavior of the gasoline price? We might hypothesize that person's decision regarding the gasoline price effect will take into account their expected future price. Of course, we do not know, but at least we might expect customers to look into past prices. For example, in 2012-2014, the gasoline price was very high, did it affect sales in 2015 differently than in 2018 when the price was lower 2015-2017? In other words, would it help the model to include past prices, not just current ones? Or their moving average, for example?

The equation $prius_t = \dots + gasprc_t$ expects the consumer to react on change in price in the same period, can we expect people to be so elastic? What about switching costs?

Why did you not consider using a logarithmic form for the price variable?

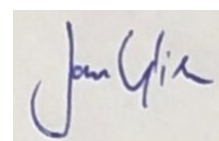
Upon a confident discussion, I suggest defending the thesis with grade C.

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

| CATEGORY | POINTS |
|---|-----------|
| <i>Contribution</i> (max. 30 points) | 25 |
| <i>Methods</i> (max. 30 points) | 25 |
| <i>Literature</i> (max. 20 points) | 16 |
| <i>Manuscript Form</i> (max. 20 points) | 12 |
| TOTAL POINTS (max. 100 points) | 78 |
| GRADE (A – B – C – D – E – F) | C |

NAME OF THE REFEREE: Jan Šíla

DATE OF EVALUATION: 30.5.2020



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 |