

Report on Bachelor / Master Thesis

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

Student:	Vendula Letovska
Advisor:	Karel Janda
Title of the thesis:	Structural Modelling of Impact of Ethanol on U.S. Gasoline Prices

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

This thesis deals with a question How does the blending of corn ethanol influence the prices U.S. consumers pay at the gas pump? This thesis is a part of a bigger project on the topic of price transmission in the biofuels/fuels supply chain. We started this project already in Spring of 2022 and I hoped that by Christmas of 2022 Ms. Letovska will be essentially done with her thesis. Well, she was done with a big part of her work by early 2023, but in order to finish it, she took additional one and half year. And as often happens, there was a sprint effort over the last few days just before the deadline for submitting the thesis to the IES online system.

Working with Ms. Letovska was actually quite a pleasant experience. She is a very good person to work with. She is a great member of a team and good collaborator, keeping her coworkers happy with working with her. And she is able to deliver the results.

Contribution

This thesis provides a real research contribution. Firstly Ms. Letovska does a replication and verification of 3 models of biofuels system published in high quality journals by high quality researchers. This included communication with 2 well established researcher from abroad, getting their source code etd. So this by itself shows that Ms. Letovska is able to understand 3 microeconomics models of increasing complexity, make them work and use them. This by itself would be essentially enough for a passing grade on diploma thesis defense in any Czech economics programme. Secondly Ms. Letovska collects a lot of needed data for updating the models – this was not easy and it should raise the grade for this thesis. Thirdly Ms. Letovska does some twists on Drabik et al. model to get the model to answer the questions she is asking (impact of ethanol on prices of fuels) insted of answering questions prof. Drabik was interested in (mainly implications of ethanol for agricultural system). Fourthly, Ms. Letovska does a lot of simulations to let the 3 models to answer her questions. And finally she does her best in interpreting the results, putting all 3 models together. The simulation results of Ms. Letovska may be considered a valuable contribution into the public debate about the economics of biofuels.

Literature

I am giving full points for literature. After many iterations I did not find any formal mistakes in the list of references. And I am fully happy with the list of literature used. Some items on the list of literature, like Bielen et al. (2018) are pretty good and they were new (and interesting) to me. I took a personal care of checking the list of references and the appropriate bib file before submission, so any formal or factual mistakes are now my fault. This thesis has much better formatted references than it is a case for average IES thesis (or article submission). However I still have to mention that Ms. Letovska did not follow my advice to put curly brackets {} around capitalized words in bib file. Instead she put {} around the whole title of the article – this is a wrong practice, this is against the philosophy of not imposing hard constraints on Latex and letting different Latex (bibtex) styles to decide if the title is capitalized or not. Actually while checking her bib file, I run into a problem of including article number (insted of page number) in the bibtex. When doing quick check on-line, it looks like everybody is saying that bibtex styles were created before article number convention appeared and that there does

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not exist clear solution to this issue (in this case I used \number field in bibtex to put article number into it for one reference, but it is not fully correct, probably).

Manuscript form

I am giving full points for manuscript form. I think Ms. Letovska did a good job in writing formally good text and that she significantly improved her Latex skills during the work on her thesis.

Overall evaluation and suggested questions for the discussion during the defense

For this thesis, I do not really have any easy questions since we already went over many of them with Ms. Letovska during the last 2-3 years. However to be fair, here is an easy question: Go once more over de Gorter and Just (2009) analytical part and make sure that your presentation in your section 4.1 is consistent:

Equation 4.4 is taken from de Gorter and Just Result 1, which assumes no tax credit. However your Equation 4.5 is taken from de Gorter and Just appendix where they consider both mandate and credit. I guess you can fix it just by removing tax credit t_c from your Equation 4.5.

However I have some hard questions:

1. Could you replicate (on your own) the comparative statics of de Gorter and Just for computing the partial derivative of price of blended gasoline with respect to share of ethanol? And do the same thing for Drabik et al. model? Asking for doing this for Wu and Langpap would be probably too much.
2. How do you explain the rows for 2015, 2016, 2020 in de Gorter model Table 5.2?
3. How does it come that you so persuasively conclude that the higher share of biofuels blended into gasoline, the lower the price paid by US consumer at the gas pump? It looks like the analytic solution to comparative statics (my Hard Question 1) is ambiguous – allowing both for increase and decrease in prices, depending on input values into the model. So maybe experimenting with different elasticities and values of parameters could change your results. Also there is a more fundamental question whether the models used are not biased towards the favorable treatment of ethanol (towards getting the result that more ethanol means lower prices of fuel).

I consider that fair grade for this thesis is somewhere between A and B, considering very high standards of A and B grades at IES. In the light of considerable effort and learning improvements exhibited over the duration of this thesis project, I am leaning towards recommending a grade A for this thesis.

Probably this thesis is too much on energy/technical side to win a Vavrousek competition – not enough talking about environmental sides of biofuels, not enough talking about human values and civilization development (but it is all there, in the issues covered by this thesis). However I still recommend Ms. Letovska to submit this thesis for the next round of Vavrousek Award as long as it is technically possible (she cannot submit for this round because it will be defended too late, in September). Similarly, if applicable, this thesis could go for some other competitions, especially in the areas of energy economics or microeconomics. .

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In my view, the thesis fulfills the requirements for a master thesis at IES, Faculty of Social Sciences, Charles University, I recommend it for the defense and suggest a grade 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
<i>Contribution (max. 30 points)</i>	26
<i>Methods (max. 30 points)</i>	25
<i>Literature (max. 20 points)</i>	20
<i>Manuscript Form (max. 20 points)</i>	20
TOTAL POINTS (max. 100 points)	91
GRADE (A – B – C – D – E – F)	A

NAME OF THE REFEREE: Karel Janda

DATE OF EVALUATION: August 15, 2024

Digitally signed (August 15, 2024)Karel Janda

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.*

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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