Report on **Bachelor / Master Thesis**

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

Student:	**Lukáš Bystřický**
Advisor:	**Ing. Vilém Semerák, M.A., Ph.D.**
Title of the thesis:	**Analysis of Chinese foreign direct investment to Europe**

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.

Contribution

The thesis tries empirically contribute to the literature on Chinese FDI into Europe. To properly asses the contribution of the thesis the estimation strategy of the author shall be discussed and clarified. See my comments in the "Methods" section.

Methods

The method of the thesis relies on gravity model (GM) for FDI flows. The author not only presents the methodology of his research but also quite extensively discusses various methodological issues related to the estimation of FDI GM. Generally, I have some doubts about the empirical strategy of the author, especially the way how he compares the results of the several estimation procedures and the way how he manipulated with the data. Both topics shall be explained by the author during his defense. My concrete comments are below.

Data manipulation and estimation procedures

Interesting point for the discussion during defense are the author´s comments on page 22 where he claims that *"The results of these test are, however, somewhat open to interpretation. Sometimes the tests recommend one method, while it can be reasonably argued in favor of the other based on the logic of the model."* The author´s comment concerns the panel data tests that are used to decide between pooled OLS (POLS), Fixed Effects and Random Effects. I would welcome the author to explain this statement during his defense more because in my opinion there is no open interpretation because the researcher should follow the logic of econometrics. I understand that the FE estimator wipes out all time-invariant variables but I personally do not agree with the strategy to choose the estimator (FE x RE x POLS) according to my research question regardless of the tests´ results. If an author wants to estimate the time-invariant variables then the natural choice is the Taylor approximation procedure introduced by Baier and Bergstrand (2009, Bonus vetus OLS), at least for the gravity models of international trade. Therefore, I regard this issue as a good topic for the discussion during the defense.

On page 28 (chapter 3.5.3.3) the author explains how he treated missing data. To fill the gap, he used data from other sources. According to the author *"in our case, the adverse effects are not so severe"*, however I am not simply persuaded because the author does not present strong arguments in favor of his position. Did he at least try to estimate the model on "non-manipulated" data? What is the difference in the results? Simple comparison of the outcomes can give us some basic information while the manipulated dataset can be easily regarded as a partial "robustness check". However, I would like to definitely see the non-manipulated unbalanced panel as the benchmark model. Generally, I do not find this approach (filling missing observations from other sources) suitable because of the potential bias in the result. It is also common for many research papers to work with unbalanced panel databases (sometimes even 40% of observations are missing) to avoid improper manipulation with data. So, there is no reason not to estimate at least the model without any changes in the data.

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The strategy of the author is to estimate the model via all 4 discussed estimators (POLS, FE, RE and PPML) when the missing data are approximated by the author. On page 31 he claims: *"The following results may be flawed from econometric point of view, but they are computed according to a long tradition of successful applications in explaining FDI and trade flows. Most of the issues come from incomplete and unreliable data and correcting this only via econometric methods is impossible. Maximum effort was given to creating the dataset with as few problems as possible and taking into account the size of the sample, possible bias should be small."*
I do not agree with the proposed strategy by the author (quotation above) in several aspects:

1) We should follow the logic of econometrics, because if we have bad data and we use wrong econometrics, then we can hardly have reliable results. If there are just bad or imperfect data, then we should be at least sure with our econometric approach. Econometrics is not here to "correct" data but to correctly work with data.
2) Because of the point 1) I see no logic in comparison of one good model with the "wrong" ones. E.g. if the winner of the test procedure is the FE, then this estimator is simply superior to the other ones. I can imagine to compare this FE winner with some other good specifications such as the one introduced by Baier and Bergstrand (2009, Bonus vetus OLS), which would also deliver econometrically reasonable results.
3) I do not agree with the strategy to "adjust" the dataset to reduce the bias in the estimation. I am afraid that by manipulating (=substituting missing values by observations from other sources) with the dataset the author could increase or cause a bias in his estimation. And I see no tests from his side to check this possible outcome.

The problems I describe can be easily seen in the author´s comments on results. On page 35 he writes:

> *„..the Hausman test should decide which one is more suitable. On the other hand, the results confirm the hypothesis from the same section that FE has very little explanatory power. The time-fixed variables disappear and the rest of the variables are at best marginally significant. In addition, the within R-squared is only 0.25 which means that the variables of interest explain much less variance in the data. Even though Hausmann test prefers FE to RE, the fixed effects' results are very weak and do not provide any interesting interpretation. The random effects, though rejected by Hausmann test, are still interesting, again, especially considering the similarities between the parameters and the pooled OLS. They are really almost identical and even the insignificant inflation is negative."*

Author´s comments lead me to an impression that he suppresses the results of FE because it has little explanatory power and time-invariant variables disappear even though the FE is "the winner" according to the econometric tests. If the FE is the superior estimator, then the remaining estimators are simply biased (especially POLS) and I see no reason to extensively comment on them and take them seriously. In this situation there is no point in claiming that the results of POLS and RE are almost identical if they should not lead to the best results according to the tests.

Other comments

I would also welcome at least brief explanation of the statistical tests and the procedure itself used to decide between FE, RE and POLS. The results of the statistical tests shall be also included in the text (at least in the Appendix).

In the chapter 1.3 the author presents Chinese FDI flows into various countries which are then graphically presented in Figures 2, 3 and 4. I would recommend to include not only the name of the source database but also the version (or year) of the database. Then the source data identification

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would be complete and it would be also clear from which year are the FDI data presented in Figures 2 and 3 (same problem is also in case of Figure 5).

Generally, I also miss clear identification of data sources under each figure or table. In the thesis a reader must find that information in the text so it may be sometimes confusing. One example is then the Figure 6 which is copy pasted from some publication but the image also includes some source. However, that presented source is obviously not the publication from which it was copy pasted. In this case clearly depicted source by the author would easily clarify the origin of the image.

I also miss at least basic explanation of the estimators PPML, RE and FE in the methodology sections (how they work, etc.). The author just claims (chapter 3.3.3) that they are frequently used but I miss at least few sentences about the logic of their conduct (e.g. that FE wipes out some variables because of de-meaning of the dataset etc.).

In the models estimated by the POLS and PPML did the author use country or time dummies?

Also, on page 22 the author presents the equation to be estimated. However, the variables in the equation are not explained. We can find the explanation on page 28, however at least short commentary on variables in the equation should be included immediately below it.

To conclude my remarks on methodology, I think that the estimation strategy of the author shall be explained during his defense to clarify these remarks. I know that some authors are comparing various estimators. And some of them are following similar strategy as the author of the thesis, however I find it simply wrong because it violates the econometric logic behind GM. If we are to compare the estimators, then we should compare those who are backed by econometrics (there are plenty of estimation strategies to GM, so there is always a space for comparison of various models). Therefore, I would like to give the author a space to explain his strategy and his thoughts during the defense.

Literature
The author covers relevant academic papers concerning the methodology of FDI GM. However I miss deeper discussion of academic papers which are analyzing the impact of the Chinese FDI on Europe. E.g. there is no section which would present studies on Chinese FDI using gravity model which is the topic of the thesis. My concrete comments are below:

What is the message or purpose of the two case studies in the chapter 2? Can be those two cases generalized? What do they tell us? How are they relevant for the research question of the author?

The literature review part (chapters 1 and 2) are focused mainly on describing real economic aspects concerning Chinese FDI. I definitely appreciate it because it put the research problem into context of real economic phenomena. However, what I miss here is similarly extensive treatment of existing academic papers which would deal with Chinese FDI on discussed regions or concerning discussed problems. Then the literature review would be properly balanced consisting of summary on relevant academic and non-academic papers. This comment does not apply for the chapter 3, where the author discusses many relevant academic papers related to the methodology and estimation procedure of gravity models.

In the chapter 3.2 the author talks about theory-based gravity models. Therefore, I would welcome the author to at least mention in one sentence the work of Anderson and Wincoop (2003, "Gravity with

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gravitas") which is the cornerstone of the microfoundation revolution of GM. On the other hand, the author describes other relevant papers.

I would welcome little bit longer discussion about the difference in theory-based GM for trade and FDI. It would help to explain the context of theory based FDI GM while the research on microfounded FDI GM is underdeveloped compared to the research on theory-based GM for a trade data.

Manuscript form
I would recommend the author to partially revise the conclusion to include also the main findings of his research. Goal of the conclusion is not to summarize the structure of the thesis (chapter X is about Y), but to summarize the research goals, results and potentially discuss some interesting implications of topics for further research.

I would recommend the author to avoid too large paragraphs and divide them into smaller ones (e.g. second paragraph in the introduction or the first one in the chapter 1.1).

Concerning the Figure 1 I would make clear that all the colors except orange refer to the outward flows (if I understand the figure correctly).

On the page 19 the author cites one sentence form the paper by Blonigen, Piger (2014). To correctly present the reference also the page should be included: e.g. Blonigen, Piger (2014, p.XYZ).

Summary and suggested questions for the discussion during the defense
The author has chosen very interesting and relevant topic for his research. He is able to explain the real-world context of his research question and estimate gravity model for FDI. However, the empirical part is potentially the weakest part of the thesis because of his strategy to suppress the econometric logic behind the choice of the estimator. I saw this strategy in few other papers but I find it wrong from the reasons explained above. I would like to give the author the opportunity to clarify his strategy and respond to my skeptical comments. Therefore, my questions for the defense are following:

- What are the main findings and the main message of the research? Can he summarize them in several short sentences (as it would be in the conclusion)?
- How did the author test that there are no severe adverse effects of data manipulation (filling missing values)? Did not he cause the bias in the results by the manipulation itself?
- Can the author explain his estimation strategy and respond to my skeptical comments about the comparison of the results from all four estimators?
    - E.g. How does he justify his preference of PPML and RE if the FE estimator is preferred by the statistical tests?
- In the models estimated by the POLS and PPML did the author use country or time dummies?
- What is the message or purpose of the two case studies in the chapter 2? Can be those two cases generalized? What do they tell us? How are they relevant for the research question of the author?

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

CATEGORY		**POINTS**
Contribution	*(max. 30 points)*	20
Methods	*(max. 30 points)*	14
Literature	*(max. 20 points)*	14
Manuscript Form	*(max. 20 points)*	15
TOTAL POINTS	*(max. 100 points)*	**63**
GRADE	**(A – B – C – D – E – F)**	**D**

NAME OF THE REFEREE: Michal Paulus

DATE OF EVALUATION: ***2.9.2018***

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.*

Strong	*Average*	*Weak*
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.*

Strong	*Average*	*Weak*
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.*

Strong	*Average*	*Weak*
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.*

Strong	*Average*	*Weak*
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**