Opponent’s Report on Dissertation Thesis

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<table>
<thead>
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<tr>
<td>Advisor:</td>
<td>Prof. RNDr. Jan Ámos Višek, CSc.</td>
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<tr>
<td>Title of the Thesis:</td>
<td>Metody robustní ekonometrie s aplikacemi na ekonometrická data</td>
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<td>Methods of Robust Econometrics with Application to Economic Data</td>
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<tr>
<td>Type of Defense:</td>
<td>DEFENSE</td>
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<td>Date of Pre-Defense:</td>
<td>March 17, 2011</td>
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<td>Opponent:</td>
<td>Doc. Mgr. Marian Grendár, PhD.</td>
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Address the following questions in your report, please:

a) Can you recognize an original contribution of the author?
b) Is the thesis based on relevant references?
c) Is the thesis defensible at your home institution?
d) Do the results of the thesis allow their publication in a respected economic journal?
e) Are there any additional major comments on what should be improved?
f) Were your comments raised at the pre-defense, addressed in the dissertation submitted to the regular defense? (The pre-defense report is enclosed below)
g) What is your overall assessment of the thesis? (a) I recommend the thesis to be defended without major changes; (b) The thesis is not defensible.

(Note: The report should be at least 2 pages long.)

Content of the Report:

The thesis is devoted to the robust estimation in the panel data econometrics, and its economic/econometric applications. It is based on three papers by the author and her co-authors.

a) In my view, the main contribution of the thesis is a novel application of the Least Trimmed Squares method to panel data, for discovering outliers and for robust parameter estimation.

b) I agree with Eva Michalikova (and her co-authors) that there is not much research, neither applications, of the robust methods in panel data econometrics. The robust panel data methods become to attract econometricians' attention and the author's contributions are thus very welcomed and timely. The relevant econometric references are included in the thesis.
c) The thesis contains a solid applied econometric research.

d) In my view, research presented at the thesis satisfies the publication standards in the field of applied econometrics.

e) Concerning the scope for improvements, I think that the thesis has attained a mature form and that there is not much to be criticized in the thesis, per se.

f) The author has addressed the comments that I have raised in the pre-defense in a satisfactory manner.

g) The PhD thesis of Eva Michalíková presents an interesting and valuable contributions to the panel data econometrics, in the form of the robust Least Trimmed Squares (LTS) estimation method, which is used for detection of influential observations as well as for parameter estimation. The method is applied to study economic effects, in three different areas of economics: 1) to find the determinants of the Foreign Direct Investments in the Czech manufacturing industry (23 sectors, data from 2000 to 2008 time span), 2) to determine factors of growth of small family businesses in 28 European countries between 2002 and 2008, and 3) to investigate the credit support for export within the framework of static and dynamic gravity models. The thesis demonstrates that application of LTS usually leads to improved estimates with higher precision and statistical significance. The author also demonstrates her superb skills in economic and econometric model building, and uses the LTS method to perform a careful econometric analysis of the data, guided by the up-to-date economic theory.

I recommend the thesis to be defended without major changes.

Date: May 7, 2012
Opponent’s Signature: 

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Opponent’s Report on Dissertation Thesis

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Author: Eva Michalíková
Advisor: Prof. RNDr. Jan Amos Víšek, CSc.
Title of the Thesis: Metody robustní ekonometrie s aplikacemi na ekonometrická data
Methods of Robust Econometrics with Application to Economic Data
Type of Defense: PRE-DEFENSE
Opponent: Doc. Mgr. Marian Grendár, PhD.

Address the following questions in your report, please:

a) Can you recognize an original contribution of the author?
b) Is the thesis based on relevant references?
c) Is the thesis defendable at your home institution or another respected institution where you gave lectures?
d) Do the results of the thesis allow their publication in a respected economic journal?
e) Are there any additional major comments on what should be improved?
f) What is your overall assessment of the thesis? (a) I recommend the thesis to be defended without major changes; (b) The thesis is not defendable.

(Note: The report should be at least 2 pages long.)

The thesis is devoted to the robust estimation in the panel data econometrics, and its economic/econometric applications.

Content of the Report:

a) In my view, the main contribution of the thesis is a novel (at least in the field of panel data econometrics) application of the Least Trimmed Squares estimation method to panel data.

b) I agree with Eva Michalíková (and her co-authors) that there is not much research, neither applications, of the robust methods in panel data econometrics. The relevant econometric references are included in the thesis. – However, in statistics, a substantive developments have been made in robust estimation, inference, model selection, for the linear mixed model, over the last ten years (cf. e.g., [1], [2]). Econometrics (both theoretical and applied) could, in my view, benefit from these developments.

c) The thesis contains a solid applied econometric research.

d) In my view, research presented at the thesis satisfies publication standards in the applied econometrics.
e) The three papers included in the thesis document high-level skills of Eva Michalikova, in economic model building. In my comments and questions, I will concentrate on statistical aspects of the papers.

1) Let me look at the thesis from the perspective of the following John Tukey's quote “It is perfectly proper to use both classical and robust/resistant methods routinely, and only worry when they differ enough to matter. But when they differ, you should think hard”.

In the first paper (Part II of the thesis) the authors fit a model (Eq. (4), p. 21) by means of OLS, FE and GMM. Then they apply the robust method of Least Trimmed Squares (LTS) for parameter estimation, and use it as a tool for detection of influential observation(s). The influential observations are then excluded from the data, and the model is refit (again by OLS, FE and GMM).

A comparison of the OLS estimates on the whole data (cf. Table 3, p. 24), with those from the data with the influential observations excluded (cf. Table 4, p. 27), reveals that the estimates have not changed much, except of the 'Profits per labor' variable (and R&D variable, which is, however, not statistically significant), where the change is from 0.428 to 1.505.

The same stability holds for the FE and to a bit smaller extent also to GMM estimates.

This, in my view, implies that there was no need to exclude from data the observations, which LTS has identified as influential.

2) In all the three papers, the authors rely on p-values, that are obtained after some data were excluded from the data set. However, the correct p-values should be conditioned on the criterion used for the exclusion of the observations (cf. [3] for a discussion, and alarming examples).

3) At the thesis, the robust LTS method is used as a tool for excluding 'dangerous' observations from the data. It is not applied as a self-standing robust method of estimation and inference.

LTS is an L-estimator. The M-estimators are much more studied, also in the case of the linear mixed model (cf. e.g., [1], [2], [3]). Results on their distributional properties, and robust versions of model selection procedures (robust R^2, robust AIC, etc.) are available. The M-estimators theory for linear mixed models thus provides a basis for full-scale robust analysis of panel data. The M-methods may be worth trying, in the future research and applications.

4) A minor note: It would be helpful to see plots of the data. (A picture is worth thousand words.)

f) The PhD thesis of Eva Michalikova presents an interesting contribution to the panel data econometrics, in the form of the robust Least Trimmed Squares estimation method, which is used for detection of influential observations. The method is applied for study of economic effects, in three different areas of economics: to study determinants of FDI in Czech
manufacturing industry, to determine factors of growth of small family businesses, and to investigate credit support for export. The author also demonstrates her superb skills in economic and econometric model building, and uses the LTS method to perform a careful econometric analysis of the data.

I recommend the thesis to be defended without major changes.

References:


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