Report on Bachelor / Master Thesis

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

Student:	**Lucie Davidová**
Advisor:	**Doc. Ing. Vladimír Benáček, CSc.**
Title of the thesis:	**Various Estimation Techniques of the Gravity Model of Trade**

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

While the thesis is competently written, it is greatly misleading in its conclusions (after inspecting the introduction, the reader will see that the author is very self-confident and combative, implicitly trashing many other researchers in international economics, so I will not use euphemisms in this report). Most of my comments will mirror what I have already told the author during several master's thesis seminars, but few of my recommendations were taken into account. The basic idea of the thesis (which is cryptically and vaguely titled "Various Estimation Techniques of the Gravity Model of Trade") is to review several estimation methods used for gravity equations and then try to show that different subsamples of trading pairs used in gravity equations yield different estimates for some of the coefficients in the gravity equation (I see very little connection between these two goals). Different subsamples indeed yield slightly different coefficient estimates, which prompts the author to reject the usual practice of international economics to include as much data as possible (because the data might be too "heterogeneous").

I see many problems in the thesis. The first one is the lack of contribution: given that the main results have nothing in common with the extensive description of different estimation techniques (which is done in a better and more authoritative way by Head and Mayer in their chapter of the new Handbook of International Economics), I don't see why the author bothers with chapter 2 at all. So the thesis really starts on page 29, but even then it is not clear how much of the analysis is original and how much comes from the author's bachelor thesis. It is not clear to me whether the main results of the thesis (different coefficient estimates for different clusters of countries) are tested statistically – from the tables the coefficients look slightly different, but certainly do not strike me as calling for a radical change in the methodology of international economics.

But even if the coefficients were totally different, they do not support the author's main claim – which, I gather, is that estimating large gravity equations is futile because the countries are not homogeneous. The author has clearly not followed on the recent literature when she claims that using panel data requires a homogeneity assumption for all the parameters: what about, for example, the mean group estimator, now commonly used for cases of both large N and T? Of course there is heterogeneity in the data, but this is precisely what we are interested in and trying to uncover. One way could be to move into disaggregated datasets and look at the

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differences across industries, but this is not what the author does. Instead, for reasons I don't fully understand she limits her analysis to trade flows from one country (Austria). Doing so she cannot offer many interesting results, because when she uses fixed effects (the only estimator that is consistent, and thus worth mentioning and estimating in this case because it controls for multilateral resistance terms), she cannot include bilateral dummy variables like currency union (if she used more origin and destination countries, as is typical in international economics, she could have used origin and destination fixed effects and still included bilateral dummies). The heterogeneity argument doesn't apply here, because, as I have noted, if this is a real concern, the author can estimate the gravity equation for each origin country separately and then evaluate the mean coefficient estimates and (potential) differences across countries. I suspect that the author used data for Austria because she already collected them for her bachelor's thesis.

Perhaps I'm being too harsh, but I don't really see much value added in this thesis. The author is welcome to rebut my comments and showcase her contribution during the thesis defense, but this should really be persuasive to warrant a grade above C. Additional questions:

- Are standard errors in panel regressions clustered? If not, the author's inference is wrong throughout the thesis.

- Why does the author exclude observations of zero trade flows when some of the methods (like PPML) can handle them? The ability to include zeros is one of the most important arguments for the use of PPML.

- Suppose your results were really correct and sound. What do you think it would mean for the practice of gravity equation estimation? Please be concrete (which specification would be preferred, etc.). I miss this stated clearly in the thesis.

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

CATEGORY		**POINTS**
Literature	*(max. 20 points)*	15
Methods	*(max. 30 points)*	25
Contribution	*(max. 30 points)*	5
Manuscript Form	*(max. 20 points)*	15
TOTAL POINTS	*(max. 100 points)*	**60**
GRADE	**(1 – 2 – 3 – 4)**	**3**

NAME OF THE REFEREE: PhDr. Tomáš Havránek, Ph.D.

DATE OF EVALUATION: January 10, 2015

Referee Signature

EXPLANATION OF CATEGORIES AND SCALE:

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*

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*

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*

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 POINTS	**GRADE**		
81 – 100	**1**	= excellent	= výborně
61 – 80	**2**	= good	= velmi dobře
41 – 60	**3**	= satisfactory	= dobře
0 – 40	**4**	= fail	= nedoporučuji k obhajobě