

# Report on Bachelor / Master Thesis

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

<b>Student:</b>	<b>Marie Ptáčnicková</b>
<b>Advisor:</b>	<b>Barbara Pertold-Gebická</b>
<b>Title of the thesis:</b>	<b>Investigation of cross-country differences in student performance in standardized tests: the role of modern and traditional teaching methods</b>

## **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**

I will start with a summary. The thesis estimates the effects of different types of teaching practices on student test scores. It distinguishes between modern teaching practices (team work, students actively explaining, etc) and traditional teaching practices (memorizing, frontal teaching, etc.). It uses data from TIMSS 2007 data from 43 countries, which contain comparable measures of test scores, student questionnaire on teaching practices and many other information.

As the first step, the author estimates these effects for each country, using within-student across-subject variation, in order to address some of the key identification challenges, such as selection and sorting. The estimation strategy is relatively credible and builds on earlier related work. The first result is that there is a lot of variation across countries in the estimated effects. In some countries, modern methods improve test scores, in similar number of countries they reduce test scores and in others there is no relationship. And similarly for the traditional methods. Thus, as a next step the author tries to make sense of this heterogeneity and links the data with country-level characteristics, in terms of features of the education system and some cultural variables, and correlate them with estimated coefficients. The main finding is that one cultural variable, called uncertainty avoidance, predicts the estimated effects of teaching practices. In particular, in countries with high uncertainty avoidance, modern teaching practices have positive effects, while in countries with low uncertainty avoidance, traditional teaching practices have positive effects.

In terms of contribution, this thesis builds on methods used to study the effects of teaching practices in one (or only a few) country. The thesis contributes by extending the analysis and estimating the effects for a much wider set of countries (43). This turns out to be useful, because the results show that the effects are highly heterogeneous across countries. Further, the author has tried to shed light on why this may be so by linking the estimates to a rich set of country-level variables. This analysis, in my view, is interesting but it seems to open more questions than it answers. Overall, the analysis is generally convincing.

### **Methods**

The thesis has a clear research question, the author found appropriate methods in the existing literature that allow her to extend the existing work. In general, the analysis is careful, clearly documented and explained, it is relatively advanced and contains several good robustness checks.

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## Literature

The literature review is comprehensive, it is clear that the author read a lot related research, including well-published original research papers. The author learned from them and is able to summarize them in a coherent way.

## Manuscript form

The thesis has a logical structure, it is easy to follow. In general, the thesis is well written. At a few places the text becomes a bit repetitive and there are several typos, but these are minor things.

## Summary and suggested questions for the discussion during the defense

This is a nice empirical MA thesis on important topic, I enjoyed reading it. It usefully contributes to existing knowledge about the effect of teaching practices on student test scores. It also showcases the skills of the student – this is a solid applied microeconomics study, which involves putting together and handling of large data sets, understanding the existing literature, applying the right methods and generally understanding challenges and limitations of the results and methods. This is an applaudable achievement for an MA student. The results are interesting and should inspire more work in this area. Therefore, **I am happy to recommend the thesis for a defence and I propose a grade A.**

The results of the Turnitin analysis do not indicate significant text similarity with other available sources.

Here are several comments about interpretation that could be discussed during the defence or could give the author some fruit for thought if she decides to continue in this research in the future:

1. On one hand, the beauty of using the TIMS data is that they are internationally comparable, and thus this expansion of the analysis to cover many countries is useful and meaningful. Their limitation, however, is that they cover relatively narrow range of skills – they are based on test scores in math and science. This means that they do not cover measures of, for example, non-cognitive skills, such as ability to cooperate in teams, social intelligence, etc and thus the types of skills that are increasing crucial on the labor market (see the work of Heckman and others). Although the author briefly mentions this aspect in the concluding section, it also implies that one needs to be very cautious before drawing strong policy implications, as this thesis does, about relative value added of modern vs. traditional methods of teaching, because the former are likely to foster the above mentioned non-cognitive skills.

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2. I must admit I found the observed cross-country correlation somewhat counterintuitive. A priori, I would expect that modern teaching methods would be more prone to foster learning in the environment when people are more open uncertainty and have lower preference for rigid behavior. But the actual results suggest the opposite, which is not a critique of the thesis and its empirical analysis, it just makes one think about the interpretation. My guess would be that modern teaching practices would be much more prevalent in countries with more tolerance to new behavior and experiences. Isn't the case that traditional teaching practices have positive effects in countries where the standard are modern teaching practices, while modern teaching practices are more efficient in places where the standard are traditional teaching practices. In other words, doesn't the cultural variable work as proxy for overall teaching practices in a given country, and then the effects would be picking the effects of teachers that go against the common teaching practice in a given setting (perhaps because they may be strong and inspiring personalities, or because unusual teaching style makes students more attentive). This speculation could be tested, and I would be curious to know.

3. I find it hard to think about the traditional and modern teaching methods as being complementary. I would think that they are substitutes - a single teacher either uses traditional or modern teaching methods. I understand that the two measures correlate in the actual data, but it is hard for me to grasp the intuition. What is then the comparison? In other words, if a teacher uses neither traditional nor modern teaching method, what is the "omitted" teaching style? This is important for interpretation of the coefficients.

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

<b>CATEGORY</b>	<b>POINTS</b>
<i>Contribution</i> (max. 30 points)	28
<i>Methods</i> (max. 30 points)	30
<i>Literature</i> (max. 20 points)	30
<i>Manuscript Form</i> (max. 20 points)	17
<b>TOTAL POINTS</b> (max. 100 points)	<b>95</b>
<b>GRADE</b> (A - B - C - D - E - F)	<b>A</b>

**NAME OF THE REFEREE:** *Michal Bauer*

**DATE OF EVALUATION:** 13.1.2021

*Digitálně podepsáno (13.1.2021)*  
*Michal Bauer*

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**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