

# Advisor's Report on Dissertation Thesis

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Author:	<b>Jan Průša</b>
Advisor:	doc. Ing. Vladimír Benáček CSc.
Title of the Thesis:	Economic Efficiency, Competition and Equilibrium in Heterogeneous Production
Type of Defense:	<b>DEFENSE</b>
Date of Pre-Defense:	December 5, 2012

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) Do the results of the thesis allow their publication in a respected economic journal?
- d) Are there any additional major comments on what should be improved?
- e) Were the comments raised at the pre-defense, addressed in the dissertation submitted to the regular defense?
- 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 defensible.

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## The Report of Vladimír Benáček:

### A] Originality of the contribution.

The dissertation of Mr. Průša consists of 4 parts:

- a) theoretical introduction in ch. 2;
- b) paper i. analysing British SMEs in ch. 3 (based on estimation of money-metric production frontier);
- c] paper ii. on Czech SMEs in ch. 4 (based on non-parametric efficiency estimated on PF envelopes by two types of DEA);
- d] Paper iii. also on Czech SMEs (ch. 5) but based on parametric stochastic model.

All four parts offer a specific contribution to the analysis of efficiency.

The most original contributions of the author concentrate in ch. 3, 4, 5:

- 1] Chapter 2 is a professional description of the modern (even the state-of-the-art) approaches to measuring efficiency in individual firms.
- 2] There are **two main original issues** dealt with in this dissertation: they rest in coping with the heterogeneity in the behaviour of enterprises and with the non-stationarity of efficiencies in time. The latter as associated with the dynamic dimension of efficiency where technologies, availability and prices of factors, demand and the competitive situation on markets vary in time and their adjustment is also not instant and not without costs. Mr. Prusa unravelled it by applying quite originally the money-metric production frontier as a nonparametric approximation of the profit function (see e.g. 3.3.1).
- 3] The second strength of the dissertation rests in **innovative empirical tests**, especially in those applied in ch. 4 and 5 (based on the Czech unique data). Without doubt, there was not undertaken such an in-depth analysis of the Czech industrial sector to this moment, enhanced by the highly non-conformist modern techniques of estimation. The innovative techniques of

Daraio and Simar (2007) have been applied here in a new environment, which required their adjustment. Also the resultant analyses of the behaviour of entrepreneurs offers new insights, which other techniques would not be able to reflect. E.g. that the size of firms is not directly related to efficiency and there are other factors which should be considered in a dynamic environment.

4] Other innovative observation deals with estimating the relationship between wages and value added. As is apparent, the level of wages and cost minimisation managerial efforts can be counter-productive and higher profits or value added are related closely to some types of labour only.

The section 3.4.3 is presenting an innovative approach by using modified non-convex estimators, which are more robust, fitting so better to the characteristics of Czech enterprises.

**B] The relevancy of the literature (references):** To my best knowledge, the choice of the literature comprises all seminal contributions of the leading authors in the given field. These go well back to fundamental papers, as well as to recent titles pushing the frontier outwards. The thesis works with those latest contribution is its empirical tests.

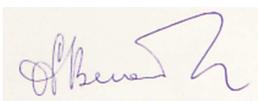
**C] Potential for publications:** Mr. Průša has been a highly innovative researcher during all his studies. From the very start he was targeting research that could be published in competitive journals, in which he was very successful. All three applied chapters were already subjected to refereed publication assessment and two were published in impacted journals. This implies that the research was original and positively received.

**D+E] Response to the pre-defence comments of reviewers:** As far as I have seen, Mr. Průša has considered all comments of referees who assessed his dissertation at Pre-Defence in November 2012. In the majority of cases he revised the text quite meticulously in order to achieve its higher clarity and to avoid minor errors/omissions. He did not have to make fundamental changes. All my suggestions for an improvement that I proposed in my report of November 2012 were considered and I am fully satisfied with the current contents and the form of the dissertation.

**F] Overall assessment of the thesis:**

The dissertation is a highly original piece of work based on fundamental contemporary theories and on applying the state of the art analytical instruments to an analysis of quite unique data of SMEs. That is reflected in a rich prism of derived implications and well-formulated conclusions.

**I recommend the thesis to be defended without changes.**

Date:	5 October 2013
Advisor's Signature:	
Advisor's Affiliation:	doc. Ing. Vladimír Benáček, CSc., IES FSV UK

# HODNOCENÍ ŠKOLITELE O PRŮBĚHU DOKTORSKÉHO STUDIA PRO PŘIPUŠTĚNÍ K OBHAJOBĚ DISERTAČNÍ PRÁCE

Jméno	Jan Průša
Studijní program	Ekonomické teorie
Studijní obor	Ekonomie
Zahájení doktorského studia (den zápisu do studia)	7.9.2009
Název disertační práce	Economic Efficiency, Competition and Equilibrium in Heterogeneous Production
Školící pracoviště	IES
Školitel	doc. Ing. Vladimír Benáček, CSc.
Pracoviště školitele	IES
E-mail školitele	<a href="mailto:benacekv@fsv.cuni.cz">benacekv@fsv.cuni.cz</a>
Datum vykonání státní doktorské zkoušky	15.9.2011
Předpokládaný termín konání obhajoby disertační práce	prosinec 2013

## Hodnocení průběhu studia

The systematic interest of Jan Průša in the problems of production functions and efficiency of producers began in early 2008, i.e. a year before his PhD studies. Very soon he acquired a deep knowledge on the topic by reading the seminal theoretical papers of Coelli, Greene, Lovell, Simar and Tulkens (among others) on production frontiers estimation and envelopment analysis, whose impact is visible on the list of his references in the dissertation, and also on his excellent usage of formal explanatory and estimation instruments.

Mr. Průša has been a highly innovative and hard-working researcher during all his PhD studies. From the very start he was targeting research that could be published in renowned journals, in which he was (as I think) very successful.

The dissertation of Mr. Průša consists of 4 parts:

- a) theoretical introduction in ch. 2;
- b) paper i. analysing British SMEs in ch. 3 (based on estimation of money-metric production frontier);
- c) paper ii. on Czech SMEs in ch. 4 (based on non-parametric efficiency estimated on PF envelopes by two types of DEA);
- d) Paper iii. also on Czech SMEs (ch. 5) but based on parametric stochastic model.

All four parts offer a specific contribution to the analysis of efficiency. As far as I have seen, Mr. Průša has considered all comments of referees who assessed his dissertation for Pre-Defence in November 2012. In the majority of cases he revised the text quite thoroughly in order to achieve its

higher clarity and avoid minor errors. He did not have to make fundamental changes.

**Remarks on the original contributions of the author, which concentrate in ch. 3-5**

1] Chapter 2 is a professional description of the modern (even the state-of-the-art) approaches to measuring efficiency in individual firms.

2] There are **two main original issues** dealt with in this dissertation: they rest in coping with the heterogeneity in the behaviour of enterprises and with the non-stationarity of efficiencies in time. The latter as associated with the dynamic dimension of efficiency where technologies, availability and prices of factors, demand and the competitive situation on markets vary in time and their adjustment is also not instant and not without costs. Mr. Prusa unravelled it by applying quite originally the money-metric production frontier as a nonparametric approximation of the profit function (see e.g. 3.3.1).

3] The second strength of the dissertation rests in **innovative empirical tests**, especially in those applied in ch. 4 and 5 (based on the Czech unique data). Without doubt, there was not undertaken such an in-depth analysis of the Czech industrial sector to this moment, enhanced by the highly non-conformist modern techniques of estimation. The innovative techniques of Daraio and Simar (2007) have been applied here in a new environment, which required their adjustment. Also the resultant analyses of the behaviour of entrepreneurs offers new insights, which other techniques would not be able to reflect. E.g. that the size of firms is not directly related to efficiency and there are other factors which should be considered in a dynamic environment.

4] Other innovative observation deals with estimating the relationship between wages and value added. As is apparent, the level of wages and cost minimisation managerial efforts can be counter-productive and higher profits or value added are related closely to some types of labour only.

The section 3.4.3 is presenting an innovative approach by using modified non-convex estimators, which are more robust, fitting so better to the characteristics of Czech enterprises.

What concerns the **publication** of the research, all three applied chapters were already subjected to refereed publication assessment and two were published in impacted journals. It confirms that the research was original and positively received.

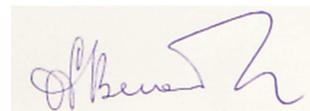
All my suggestions for an improvement that I proposed in my report of November 2012 were considered and I am fully satisfied with the current contents and form of the dissertation.

**Overall assessment of the thesis:**

The dissertation is a highly original piece of work based on fundamental contemporary theories and on applying the state of the art analytical instruments to an analysis of quite unique data of SMEs. That is reflected in a rich prism of observations and well-formulated conclusions.

**I recommend the thesis to be defended without changes.**

**Doporučuji, aby student(ka) byl(a) připuštěn(a) k obhajobě disertační práce. Student(ka) má dnes splněny všechny studijní povinnosti předepsané k vykonání obhajoby disertační práce včetně státní doktorské zkoušky.**



26.9.2013

V Praze dne .....

Podpis školitele.....