

# Report on Master Thesis

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

<b>Student:</b>	Astakhov, Anton
<b>Advisor:</b>	Jiří Novák
<b>Title of the thesis:</b>	"Competition and Innovation: Revisiting the Relationship Using Alternative Measures of Rivalry"

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

The submitted master thesis is focused on modern discussion of one of key development topics raised by my lovely theoretical economists, J.A.Schumpeter: how product market competition affects the propensity of firms to innovate. Topic that is micro by nature but available data and methods had limited quantitative research for decades. The author successfully develops the framework for the field that was not much covered in former studies and that faced the limited availability of data.

The thesis is well-structured and has two features complementing each other - economic and econometric. Here the master student carefully studied the relevant literature, gathered respectable set of micro-data and then re-assessed the relationship between competition and innovation in a detailed firm-level dataset of publicly traded US companies spanning from 1975 to 2013. In order to be able to process true microeconomic analysis the author had to approach, gather and re-establish data with variables measuring innovations (such as R&D expenditures, patent counts and patent citations) and "smart" variables used as proxies for competition (Herfindahl-Hirschman Index, Lerner Index, Profit Elasticity and Product Market Fluidity)

The econometric methodology is briefly but carefully described and applied. The application yields a robust positive association between the two sets of variables (representing innovation and competition), as well as – for reviewer surprisingly - strong evidence of the non-linear relationship known as "inverted-U shape", when controlling for size, distance to technological frontier, level of knowledge spillovers, technological opportunities and other firm- and industry-specific characteristics.

The author successfully addressed also number of other econometric issues (overdispersion in the data by using negative binomial and zero-inflated negative binomial count data regressions), and the results were robust in these specifications. Additionally, in order to address potential endogeneity issues, author employed a set of instruments based on the import tariff rates and the level of Chinese import penetration, and found a weak evidence of positive relationship as well.

At the end the reviewer fully shares the author statement that "overall the results strongly support the prediction of agency models, "replacement effect" and "escapecompetition effect" about the positive influence of competition on innovation.

The reviewer also supports the position that the approach presented in the thesis can be further developed into PhD thesis and the methods applied to the other data-sets that suffer from the similar data limitations.

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During thesis defense the author might answer the following questions:

- what are the weaknesses of his approach ?
- How would he solve that ?

Summing up, the thesis demonstrates excellent analytical ability of the author, as well as the application of sophisticated approaches and econometric models in one of crucial research fields, critical both for theory of economic evolution and also for policy recommendations.

The thesis fully complies with the defense requirements and the evaluation yields the grade A excellent. From the above mentioned reasons I recommend the committee to consider it for the Excellent Thesis Award (ETA).

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

<b>CATEGORY</b>	<b>POINTS</b>
<i>Literature</i> (max. 20 points)	18
<i>Methods</i> (max. 30 points)	19
<i>Contribution</i> (max. 30 points)	19
<i>Manuscript Form</i> (max. 20 points)	19
<b>TOTAL POINTS</b> (max. 100 points)	<b>95</b>
<b>GRADE</b> (1 – 2 – 3 – 4)	<b>1</b>

**NAME OF THE REFEREE:** *prof. Michal Mejstrik*

**DATE OF EVALUATION:** *12 September 2015*

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*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	<b>1</b>	= excellent	= výborně
61 – 80	<b>2</b>	= good	= velmi dobře
41 – 60	<b>3</b>	= satisfactory	= dobře
0 – 40	<b>4</b>	= fail	= nedoporučuji k obhajobě