

# Report on Bachelor / Master Thesis

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

<b>Student:</b>	<b>Bc. Jindřich Matoušek</b>
<b>Advisor:</b>	<b>PhDr. Lubomír Cingl</b>
<b>Title of the thesis:</b>	<b>An Experimental Test of Design Alternatives for Spectrum Auctions with Communication Channels</b>

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

The author Jindřich Matoušek provides in this thesis an original piece of research on the very up-to-date topic - the effect of communication among bidders on the efficiency in combinatorial auctions. He designed, programmed and carried out a highly complex economic experiment and got very interesting results that are worth submitting to an international journal. The effect of communication and possibly resulting collusion in combinatorial auctions is very important both for the policy makers as well as a form of a real-world evaluation of an innovative auction concept. Since the theoretical predictions of auction theory do not always match with the resulting behavior of the agents, their experimental evaluation is essential. Combinatorial auctions are moreover so complicated that there are almost no theoretical predictions available, and if so, only for auctions containing less than 10 auctioned items. Jindřich in the thesis follows (and then extends) in the baseline treatment the experimental setting of Brunner et al. (2010) only with the parameter setting as in the case of the Czech 2013 auction, and he gets results contradicting to the original paper but confirming the very recent publications of Bichler et al. (2013). Next, he finds that with communication the collusive behavior really arises and, surprisingly, it increases the efficiency, but allowing for package bidding can break the collusion. This raises question: why it is the case that the results are different from the established notion that package bidding improves efficiency? Since the experiment was carried out well, is it the different parameter setting, the (in)experience of subjects, or the specification of efficiency? On the other hand, the results go along with the very recent studies of Bichler et al. (2013) which suggests that it is more complicated. In any case, Jindřich adds an important insight into the current state of the arts in a complicated research area and thus well exceeds standard requirements for a master thesis.

Manuscript form: the thesis is well structured and organized, the length of chapters and of the thesis itself is balanced and it gives reader all information needed. The author describes the situation in the Czech telecommunication market where he got the inspiration for the experimental design.

Since the data analysis got quite complicated, I appreciate that the author decided to focus on the main point but still provides more econometric specifications and other technicalities in the appendix. The author could have had the thesis checked for typos and minor grammar mistakes, but overall it is well readable and comprehensible.

Literature review: In this part the author summarizes relevant literature that is connected to the topic of combinatorial auctions with a special focus on two papers relevant for his design, Brunner et al.(2010) and Cramton (2012). The presented literature is sufficient in length and depth, citing the seminal papers as well as the very recent developments in the field. It also is not too exhaustive, focusing on the point and providing information about combinatorial auctions, their empirical applications in the form of efficiency evaluation in the real world, and the previous studies on collusion in auctions.

Methodology: The author based the research design on Brunner et al. (2010) to evaluate the difference between the simple Simultaneous multi-round auction and its combinatorial extension which allows for the package bidding, and he extends it by the addition of communication channels while setting the auction parameters as in the Czech 2013 telecommunication auction. Thus he gets a 2x2 between subject design that he implemented on the sample of 96 subjects. One difference to the comparable studies (Bichler et al., 2013, Abbink et al., 2005 or Brunner et al., 2010) is that he could not afford to first train the subjects and then run the "real" experimental sessions, but he did his best to educate the subjects and provided them with the instructions in advance; they had to fill in a questionnaire on-line to prove their understanding. Before the auctions began, there was another test of understanding and one trial auction. The programming of the experiment itself is a very difficult task

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which he managed to do well. The analysis of results is very thorough and the author moved a large part into the appendix to make the reading more fluent, which I appreciate. The results of the t-tests and regression analyses are striking: collusion arose and actually significantly improved efficiency.

## Summary:

Generally speaking, the thesis is a demonstration of strong research abilities and an innovative idea of the author and it is thus an original contribution to the world-class research in experimental economics.

Since the quality of the thesis exceeds requirements for an ordinary Master's thesis, I suggest the committee to consider the dean's distinction.

## Suggested question for defense:

Please explain how you define the efficiency of auction. Why do you think that the efficiency under collusion increased? What are the main policy implications of your findings?

In case of successful defense I recommend the commission to give the **grade 1 (excellent/výborně)**.

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

<b>CATEGORY</b>	<b>POINTS</b>
<i>Literature</i> (max. 20 points)	20
<i>Methods</i> (max. 30 points)	30
<i>Contribution</i> (max. 30 points)	30
<i>Manuscript Form</i> (max. 20 points)	18
<b>TOTAL POINTS</b> (max. 100 points)	<b>98</b>
<b>GRADE</b> (1 – 2 – 3 – 4)	<b>1</b>

**NAME OF THE REFEREE:**

**PhDr. Lubomír Cingl**

**DATE OF EVALUATION:**

**June 18, 2014**

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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