

**REPORT ON MASTER THESIS**  
**CENTER FOR ECONOMIC RESEARCH AND GRADUATE EDUCATION**

<b>STUDENT:</b>	<b>Valentina Polishchuk</b>
<b>ADVISOR:</b>	<b>Vasily Korovkin</b>
<b>TITLE OF THE THESIS:</b>	<b>Collusion in Public Procurement Auctions: Evidence from Russia</b>

***OVERALL ASSESSMENT***

**CONTRIBUTION:** This thesis adopts a novel methodology to document, via an extensive data analysis, the degree and implication of between-firms collusion in Russian procurement auctions. The contribution is twofold. First, the empirical evidence is remarkable in itself, especially for a Master’s thesis. In particular, according to the method described in the thesis, one can conclude that a share of the auctions under examination ranging between 10% and 25% (depending on the details of the method’s assumption) is collusive, and that this share falls sharply with the number of total firms participating to an auction, an intuitive yet nice-to-document finding. Second, the method itself, which relies on the statistical frequency of bids submitted too closely in time with respect to the winning bid, is also an addition to the Industrial Organization literature, though it is extremely close to the one devised by Andreyanov, Davidson and Korovkin (2017), which the author cites, and that was originally adopted to detect corruption, rather than collusion. While the extension of such an approach is fairly ingenious, it is not exceedingly original. The author could have delivered a more original contribution had she honed some aspects of the original procedure which are ripe for improvement, say about the choice of the optimal “collusion bandwidth”  $\varepsilon$  via a statistical approach, for example.

**METHODS:** Because the key methodology employed in the thesis is novel and unique, this is a difficult section to evaluate. A key result from the original derivation by Andreyanov et al. is that the share of corrupted (or, in the setting of this thesis, collusive) auctions can be gauged through the application of simple OLS on a well-selected subset of the data. However, the analysis of the thesis is not limited to OLS, but instead it applies a wider set of statistical techniques, especially non-parametric ones, to motivate the main method and the details of its assumptions. However, I was left wondering if more could have been done: for example, the execution of formal statistical tests to evaluate the statistical fit of different estimates under distinct specifications of the time cutoffs that allow the author to identify episodes of collusion.

**LITERATURE:** The literature review is extensive, nicely structured and on point, and it shows the author’s extensive prior research and current knowledge of the subfield which is relevant for the thesis (specifically, the empirical study of auctions in Industrial Organization). Furthermore, the structure of the review is well thought-out, and it connects nicely with the empirical analysis conducted in the thesis. While reading the review, one can discern what is the literature gap that the thesis is filling. One could possibly lament the lack of additional references to the theoretical background on collusion in auctions, but this is admittedly debatable.

**MANUSCRIPT FORM:** The manuscript is nicely constructed, especially since it displays the admirable feature of being structured like a professional research paper, and yet it contains all the features that are expected from a Master's thesis (say, an extensive literature review). One could make minor remarks about the choice of mathematical notation or the typographical quality of the tables and figures, but these would be irrelevant. Where I have more of an issue is with the occasionally questionable style and fluidity of the English language, which often goes in the way of clarity (consider e.g. the discussion of the main methodological argument at pages 28-30).

**SUMMARY AND SUGGESTED QUESTIONS FOR THE DISCUSSION DURING THE DEFENSE:** This is a valuable thesis which delivers a marginal and incremental, yet significant contribution to the field of empirical Industrial Organization, by shifting and adapting an existing methodology to a research question distinct to the one that the method was originally devised for. I am thinking of different questions that can be asked the author on the occasion of her defense: for example, what are the assumptions that are necessary for a theoretical model of collusion to be consistent with her empirical framework (and methodology), or whether different assumptions about the  $G(w)$  probability distribution function for the bidding time difference, say continuous distributions, would buy the empirical analysis additional flexibility and ability to deliver a better fit, and at what cost. However, there is a key results of the paper that puzzles me and prompts the perhaps most urging question: why are the estimates in figures 4.2 and 4.3 not declining to zero more rapidly with the number of bidders? This contrasts with theoretical intuition as well as with existing findings in empirical IO, showing that “fully competitive” outcomes are often reached with a fairly low number of firms. Perhaps the results are confounded by the fact that the more the bidders, the higher the probability of observing bids that are close in time, just by chance?

**I recommend the thesis for defense.**

#### **TEXT ORIGINALITY CONTROL**

I confirm that I acquainted myself with the report on the originality of the text of the thesis from

[ ] Theses [X] Turnitin [ ] Ouriginal (Urkund)


The Turnitin analysis for the most part reports similarity indices close to or smaller than 1%, but a single Charles University submission from July 2023 displays a score of 70%. This is likely a prior version of the current manuscript, which would dispel doubts about the thesis originality.

#### **SUMMARY OF POINTS AWARDED**

<b>CATEGORY</b>	<b>POINTS</b>
Contribution	27
Methods	28
Literature	20
Manuscript Form	17
<b>TOTAL POINTS</b>	<b>92</b>
<b>GRADE</b>	<b>A</b>

**NAME OF THE REFEREE:** Paolo Zacchia

**DATE OF EVALUATION:** August 28<sup>th</sup>, 2023

  
REFeree SIGNATURE