

## Do e-auctions increase the risk of bid rigging?

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### ABSTRACT

**More than EUR 1.9 trillion is spent each year on public contracts in Europe. In a time of economic crisis, there is need to maximise the efficiency of public spending, in order to secure budget savings. One of the ways to achieve this is to deter bid rigging (collusive tendering), a practice whereby two or more bidders agree on aspects of their submissions like, for example, on quality or price. Bid rigging undermines competition among bidders and may lead to reduced quality or higher prices for goods that are procured by the public sector. In my recent research on electronically conducted auctions (e-auctions), one of the most common procurement tools that public bodies use in order to acquire goods or services, I argue that some elements of the current procurement practice increase the risk of collusion and that the new EU Directive on public procurement has not managed to adequately deal with those issues.**

The economic significance of public procurement in Europe is considerable, with public authorities in the EU spending every year approximately 14% of GDP on public procurement, i.e. more than EUR 1.9 trillion.<sup>1</sup> In an attempt to maximize the efficiency of public spending in an era of austerity and continued cuts to public purchasing, there is a trend towards the use of electronic communications by public bodies when buying supplies and services or when tendering public works (e-procurement). E-procurement offers a number of benefits such as simplified and shortened processes, reductions in red-tape and administrative burdens as well as significant savings for all parties.<sup>2</sup> Electronic auctions (e-auctions) are a representative electronic purchasing technique, the use of which has nearly doubled in numbers during 2009 and 2010.<sup>3</sup> Public procurement is regulated by two EU Directives<sup>4</sup> which apply to most of the auctions organised by public bodies. Yet, as my research demonstrates, the regulatory framework and practice of e-

<sup>1</sup> This article is based on the PhD chapter "Contracting Phase: Provisions that enhance or deter collusive tendering under the new 2014/24/EU Directive.

European Commission, 2017, 'European Semester Thematic Factsheet-Public Procurement', available at [https://ec.europa.eu/info/sites/info/files/european-semester\\_thematic-factsheet\\_public-procurement\\_en.pdf](https://ec.europa.eu/info/sites/info/files/european-semester_thematic-factsheet_public-procurement_en.pdf)

<sup>2</sup> European Commission, 2018, 'E-procurement', available at [http://ec.europa.eu/growth/single-market/public-procurement/e-procurement\\_en](http://ec.europa.eu/growth/single-market/public-procurement/e-procurement_en)

<sup>3</sup> PwC, London Economics and Ecorys for the European Commission, 2011, 'Public Procurement in Europe-Cost and Effectiveness', available at <https://ukmin.lrv.lt/uploads/ukmin/documents/files/Studija%20d%C4%97l%20kainos%20ir%20efektyvumo%20vie%C5%A1uosiuose%20pirkimuose.pdf>

<sup>4</sup> : the Public Sector Directive 2014/24/EU on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts (hereinafter "the new Directive") and the Utilities Directive 2014/25/EU, coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors.

auctions raises competition concerns as they may facilitate anti-competitive practices, such as tacit collusion and bid rigging. Collusive activities reduce the level of competition and undermine the main objectives of public procurement, such as value for money in the acquisition of the required goods, works or services and efficiency in the procurement process.

E-auctions are a procurement tool that uses web-based software to allow potential suppliers to compete online, in real time, to provide prices for the goods/services under auction. E-auctions can be based on price alone or other criteria such as quality, delivery or service levels. E-auctions can take two forms; they can be either reverse or forward. In the former, the contract is awarded to the lowest bidder and in the latter the bidder with the highest price wins the contract, for example when a company bids to purchase paper and magazines for recycling. The main characteristic of the e-auction system under the new Directive is that throughout each phase of an electronic auction information must be communicated to all tenderers in order to enable them to allocate their relative position compared to the other participants. This information may include details concerning prices or values submitted by other bidders as well as the number of participants in each phase of the auction. The identities of the tenderers shall not be disclosed. Another significant element of the new Directive is that e-auctions may take place in a number of successive phases. Moreover, the new Directive enables contracting authorities to close an electronic auction at a previously indicated date and time or when the previously indicated number of phases in the auction has been completed. This is a general concern that regards all auctions and not only e-auctions.

In my PhD chapter I argue that the new Directive raises a number of competition concerns, especially regarding e-auctions. Firstly, the sharing of information facilitates collusive schemes between the participants, even with their identities being kept anonymous. The main reason for this is that the circulation of price and other related information that is mandatory under the Directive enables the bidders to observe the prices at which rivals quit as well as the set of valid offers submitted at each round of the e-auction. In this way, it is possible for the members of a bidding ring to determine whether their co-conspirators kept their promise to submit, for example, "cover bids", i.e. bids at an artificially high price or composed of special terms that are likely to be rejected. Thus, firms engaged in bid rigging are able to monitor any deviations from their collusive agreement. Because bidders' identities are not disclosed, the bidding ring will not be able to use targeted punishments against the defecting bidder during the same auction. However, the bidding ring will still be effective in suppressing rivalry among members because of the knowledge that one or several bidders deviated. The general threat of ending the collusive agreement and reverse to competitive behaviour for the rest of the e-auction constitutes the greatest punishment for the deviating firm. All firms would receive their lower non-collusive profits. Because of the information disclosure required in accordance with the Directive, deviating from a collusive agreement would no longer be secret. The disclosure of information that makes deviations from the pre-arranged collusive agreement observable, even when anonymised, makes a bidding ring more stable and e-auctions more susceptible to collusion.

Secondly, the multi-round format that an e-auction can take may enhance the sustainability of a bidding ring, especially in the context of a market whose characteristics

raise collusion concerns. According to the economic theory of auctions, collusion is likely to flourish when auctions repeat at regular intervals so that the same bunch of bidders may meet time and time again.<sup>5</sup> The repeated interaction among tenderers, even on an electronic marketplace and without their identities being disclosed to each other, gives them a number of opportunities to observe the process of price formation and monitor any deviation from their pre-arranged collusive agreement. After all, information flows well in industries, especially when there are only a few suppliers and it may be relatively easy to identify 'anonymous' bidders. Additionally, the limited time-intervals between the rounds of a multi-round e-auction strengthen the enforcement structure of a bidding ring, as any deviating member of the ring may face threat of immediate retaliation at the next stage of the e-auction.<sup>6</sup>

Thirdly, the new Directive enables contracting authorities in e-auctions to award a contract based on price only. Especially the 'lowest price' criterion in a reverse e-auction raises collusion concerns. Though the lowest price criterion is not exclusive to e-auctions, the anticompetitive effects of this awarding criterion may be stronger in case of e-auctions, where the price is the predominant criterion to select the winning bid rather than the criterion of 'economically advantageous'.<sup>7</sup> In an environment where competition is driven only by price considerations and bidders are symmetric, bidding firms find it easier to agree on a collusive scheme. Where the public purchaser does not have any specific preferences regarding the quality of the products/services procured and the bidders are symmetric, for the latter it is like competing with cost symmetry in a multi-round e-auction.<sup>8</sup> This increases the risk of collusion because under such circumstances, the bidders can more easily suppress all ring competition in their cartel and allocate the collusive gains among them.<sup>9</sup>

The susceptibility of e-auctions to anti-competitive practices could be reduced by altering and reinterpreting the existing framework. To start with, procuring authorities should only disclose the minimum amount of information about the bidding history of other bidders. This would reduce the probability that deviations from the collusive agreement are observed, thus destabilising the bidding ring. For example, authorities could avoid disclosing the prices at which rivals quitted the auction or the number of valid offers

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<sup>5</sup> Marshall R.C. and Marx L.M (eds), 2012, *The Economics of Collusion- Cartels and Bidding Rings*, The MIT Press, 206; Soudry O, 2004, 'Promoting Economy: Electronic Reverse Auctions under the EC Directives on Public Procurement' *Journal on Public Procurement*, 4(3), 362; Aoyagi M, 2003, 'Bid Rotation and Collusion in Repeated Auctions', *Journal of Economic Theory*, 112(1), 79-105; Gupta S, 2001, 'The Effect of Bid Rigging on Prices: A Study of the Highway Construction Industry', *Review of Industrial Organization*, 19(4), 455.

<sup>6</sup> Klemperer P, (ed), 2004, *Auctions: Theory and Practice*, Princeton University Press; Albano G.L, Buccirosi P, Spagnolo G and Zanza M, 2006, 'Preventing Collusion in Procurement' in Dimitri N, Piga G and Spagnolo G(eds), *Handbook of Procurement*, Cambridge University Press, 358.

<sup>7</sup> PwC, London Economics and Ecorys for the European Commission 'Public Procurement in Europe-Cost and Effectiveness', 2011  
<<https://ukmin.lrv.lt/uploads/ukmin/documents/files/Studija%20d%C4%97l%20kainos%20ir%20efektyvumo%20vie%C5%A1uosiuose%20pirkimuose.pdf>>, 59.

<sup>8</sup> Albano GL and Nicholas C (eds), 2016, *The Law and Economics of Framework Agreements-Designing Flexible Solutions for Public Procurement*, Cambridge University Press, 197-198.

<sup>9</sup> Marshall R.C. and Marx L.M (eds), 2012, *The Economics of Collusion- Cartels and Bidding Rings*, The MIT Press, 189, 191-192; Preston McAfee R and McMillan J, 1992, 'Bidding Rings' *The American Economic Review*, 82(3) 579-599; Albano GL and Nicholas C (eds), 2016, *The Law and Economics of Framework Agreements-Designing Flexible Solutions for Public Procurement*, Cambridge University Press, 197.

submitted per round. It should be sufficient for a bidder competing in an e-auction to know whether its own bid is the leading one and what is the price of the leading bid. This information still enables the auctioneer to gauge the price that it ought to submit at the next round of the auction.<sup>10</sup> The contracting authority could also delay the publication of information to hinder collusion among auctioneers. By doing this, deviation of bidders from the collusive agreement will be delayed and so will be the punishment of the defector. It may also render punishment practically impossible if the e-auction has already closed.<sup>11</sup> In markets with concerns about collusion, authorities should also consider a single round of e-bids rather than e-auctions with multiple phases. The one-round format that characterizes e-bids “cannot be easily manipulated to coordinate bidder strategies and thus constitute an anti-cartel device”.<sup>12</sup>

The new Public Procurement Directive has not fully addressed the issue of collusive outcomes in e-auctions but contracting authorities may reduce the risk of bid rigging by reducing certainty for potential bid riggers and reducing the amount of information provided to bidders.

### Reference Examples:

<sup>1</sup> European Commission, 2017, 'European Semester Thematic Factsheet-Public Procurement', available at [https://ec.europa.eu/info/sites/info/files/european-semester\\_thematic-factsheet\\_public-procurement\\_en.pdf](https://ec.europa.eu/info/sites/info/files/european-semester_thematic-factsheet_public-procurement_en.pdf)

<sup>2</sup> Armstrong M & Huck S, 2010, 'Behavioral Economics as Applied to Firms: A Primer', *Competition Policy International*, 6(1), 3-45

<sup>3</sup> DellaVigna S, 2009, 'Psychology and Economics: Evidence from the Field', *Journal of Economic Literature* 47(2), 315-372

Camerer C, Lowenstein G & Rabin M (eds), 2004, *Advances in Behavioural Economics*, Princeton & Oxford: Princeton University Press

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<sup>10</sup> Albano GL and Nicholas C (eds), 2016, *The Law and Economics of Framework Agreements-Designing Flexible Solutions for Public Procurement*, Cambridge University Press, 352-3.

<sup>11</sup> Albano GL, Buccirosi P, Spagnolo G and Zanza M, 2006, 'Preventing Collusion in Procurement' in Dimitri N, Piga G and Spagnolo G (eds), *Handbook of Procurement*, Cambridge University Press, 352-3.

<sup>12</sup> Albano GL and Nicholas C (eds), 2016, *The Law and Economics of Framework Agreements-Designing Flexible Solutions for Public Procurement*, Cambridge University Press, 199; OECD 'Guidelines for Fighting Bid Rigging in Public Procurement', <[www.oecd.org/competition/cartels/42851044.pdf](http://www.oecd.org/competition/cartels/42851044.pdf)>, 7.