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Data Screening Tools for Competition Investigations – Note by Italy

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More documents related to this discussion can be found at
www.oecd.org/daf/competition/data-screening-tools-for-competition-investigations.htm

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1. Introduction

1. The Italian Competition Authority (the Authority or the AGCM) welcomes this roundtable as an opportunity to share its practice and the challenges faced in the implementation of these empirical methods. This contribution focuses on the AGCM experience of using screening to uncover anticompetitive horizontal agreements, particularly in procurement markets.

2. Section 2 describes some initiatives put forward by the Authority to improve the detection of bid-rigging schemes; section 3 describes a pilot project undertaken by the Authority in the past with a view to apply screening tests to tender procedures in a systematic manner and present examples of bid screening used *ex-ante* to open investigations. Section 4 illustrates how screening tests have been used also during the bid-rigging investigations, to provide valuable additional evidence to prove the anticompetitive agreement or help defining its scope in terms of number of tenders involved. In section 5, this contribution highlights some challenges and opportunities stemming from the use of data screening tools in bid-rigging investigations. Section 6 concludes.

2. Initiatives to boost the use of data screening tools in public procurement

3. Data screening tools are particularly suitable for use in sectors where large amounts of the data are available, as in the case of public procurement. In this area the AGCM has long fought bid-rigging¹ and, despite the availability of leniency programmes, most of the investigations in public procurement were launched *ex-officio*: the Authority improved its ability to detect bid-rigging cartels by increasingly using data screening tools and cooperating with key stakeholders such as public procurement agencies at central and regional level².

4. In particular, the AGCM has established a partnership with Consip, the central government procurement agency, so that all Consip planned tenders are reviewed by the Authority before their launching, offering an opportunity to provide suggestions on the design of the tenders. In order to evaluate the quality of its own advocacy activity, in a few occasions the Authority has followed up and analysed the data provided by Consip on the outcome of the tenders on which it had previously given an opinion. The analysis of the Consip data led in some cases to the detection of a suspicious pattern, prompting the launch of an investigation (see example in section 3.2 below).

¹ Between 2015 and 2021, nearly half of the cartel investigations concluded by the Authority (15 out of 36 cases) concerned collusive conduct in public procurement.

² Despite the availability of leniency programmes since 2007, self-reporting from companies has only recently increased also thanks to legislative changes that introduced an immunity against criminal charges for managers (bid-rigging is also a criminal offence in Italy).

5. This cooperation with Consip and other tendering authorities has led to an increasing number of complaints to the AGCM about suspected bid-rigging schemes and several investigations were launched³.

6. In 2014 the Authority signed a Memorandum of Understanding with the Anti-corruption Authority (ANAC) to foster information exchange and cooperation also on detection activities as ANAC manages the National Database on Public Contracts, which contains an extensive amount of data on major tenders.

3. Screening tools to launch bid-rigging investigations: the experience of the Authority

3.1. An experiment with ex-ante screening tests on the ANAC public tender database

7. In 2014 the AGCM and ANAC launched a “pilot” project using screening tests to detect collusive behavior in public procurement tenders, based on the ANAC database of tender data. The aim was to assess the utility/performance of some statistical tests in detecting bid rigging on a sample of tenders. The project was articulated in three phases.

8. The first phase envisaged the construction of the database which implied the definition of the perimeter of the sample tenders. The second phase concerned the definition of a set of screening tests to be carried out on the dataset. The last phase entailed an assessment of the Authority on the opportunity to start one or more cartel investigations based on the screening results.

9. With respect to definition of the perimeter of tenders to be considered for the experiment, the two authorities decided to focus on tenders whose features – in terms of awarding mechanism, product characteristics and competitive environment – would have been more suitable for the purposes of the analysis⁴.

10. In relation to the statistical tests, the pilot project envisaged to build indicators suitable to be applied automatically to many different product markets, that is, “rough” indicators aimed at collecting evidence of: collusive outcomes (*fever indicators*), such as

³ In 2013 the Authority issued a handbook based on the *OECD Guidelines for Fighting Bid Rigging in Public Procurement* to help procurement officials to identify market characteristics that are more prone to collusion, recognise suspicious bid patterns and other anomalous conducts that may signal collusive behaviour and report these findings to the Authority.

⁴ With regard to the mechanism for assigning contract winners, it was decided to focus on tenders awarded on the basis of the lowest bid price as other mechanisms might be used mainly in small size tenders or too complex to be easily included in the experiment. As for the type of product/service and the competitive environment, the two authorities agreed to focus on those industries showing factors facilitating bid rigging. The experiment would have therefore considered tender contracts of a significant size (to avoid the inclusion of small tenders) and concerning homogenous products (where price is key competitive variable for the award of the contract). Furthermore, to ease the analysis it was agreed to focus on tenders affecting national-wide markets as the definition of the exact perimeter of a subnational market is generally more difficult, and on tenders with a limited number of participants (below ten) to exclude from the experiment potential instances of “partial” cartels. Finally, the pilot project intended to focus on products or services for tenders are awarded regularly over time: indeed, bid rigging is more likely in tender procurements occurring on a regular or frequent basis, and this characteristic is considered important to ensure the statistical significance of the tests.

regularities and proportions in winning patterns; and collusive behaviors (*desease indicators*), such as temporary associations of firms and subcontracting.

11. Therefore, the AGCM approach was to propose a range of rather simple indicators which, used in different combinations and supported by further analysis, could lead the agency to reach reasonable conclusions regarding past episodes of bid rigging. In other words, the approach of the pilot project did not envisage the definition of screening tests for specific markets (by controlling for the impact of all the main factors) in order to estimate the ex-ante probability of collusion, an approach that is normally followed in academic studies and which are often difficult to implement in practice for various reasons including the availability and the costs of collecting data.

12. After three years, in 2017, the pilot project was abandoned due to issues related to the quality and the range of information provided by the then existing dataset of public tenders⁵. In this respect, two issues were identified:

- the database was incomplete (e.g., data on tenders which were not eventually awarded were missing) and presented clerical errors (also justified by the extreme fragmentation of the procurement system⁶);
- the database did not include information on the bids of not-winning participants. This information, even if clearly known by procurement agencies, was not collected by ANAC because the main statutory purpose for the collection of data from procurement agencies was to fight corruption, not collusion. While this information might not be strictly necessary for the construction of the statistical tests, it might prove useful to carry out checks on the outcomes.

3.2. The ex-ante data screening analysis on ad hoc dataset

13. In parallel to the screening experiment described above, the Authority decided to run screening tests on a smaller and more focused set of tenders. In particular, the Authority analysed the data for Consip tenders launched over the period 2012-2016⁷. For these tenders the Authority could build a fit-for-purpose dataset based on the information provided by Consip.

14. The screening tests applied to Consip tenders allowed to identify signals of collusive behaviour that resulted in the opening of an investigation in the two cases described in the boxes below.

⁵ Ideally, the dataset would have included the following information: identity of the procurement agency; date of publication of the tender notice and the date of award of the contract; description of the size and content of the procurement contract (or lots within the contract); start and end date of procurement contract; method for assigning contract winners; Identity of the bidder, or bidders in case of joint bid, that won the tender contract; winner bid price; number and identity of all other bidders to a single tender; identity of firms participating as subcontractors; and, bids of all other participants to a single tender.

⁶ For instance, in 2020 there were 25,700 tendering authorities involved in 4.95 million tendering procedures.

⁷ The Authority obtained data for 12 Consip tenders run over the period 2013-2014 and 23 tenders for the period 2015-2016.

Box 1. Procurement of cleaning services in schools

The case concerned a tender procedure launched by Consip on behalf of the Ministry of Economy and Finance, for the procurement of cleaning services and other maintenance services in schools of all levels of the public administration. The investigation was opened ex-officio after having detected suspicious patterns in the bid data provided by Consip.

The tender was organised in 13 lots with an overall value of 1,6 €bn, with maximum 3 lots were allowed for each winner. The bidders were: the consortium CNS (including Manutencoop), Kuadra, Roma Multiservizi (incumbent in Lazio Region lot).

In screening the bidding behaviour, it was first noted that that CNS and Kuadra bid together through a temporary joint venture (ATI1), Manutencoop bid separately despite being member of CNS and Roma Multiservizi did not bid (although it was an incumbent operator).

The screening of the discounts also provided some indicia of the potential collusive behaviour between the two major cooperatives: Manutencoop and CNS. As shown in table 1 below, Manutencoop and CNS participated to eight lots (out of 13); in six lots there was no overlap between them and in the only two lots (namely lots 3 and 9) where there was an overlap, but the unsuccessful bidder (CNS in both cases) was much less aggressive than in the other lots.

Lot (€m value)	ATI 1 (CNS)	Manutencoop	Winner
1 (110.6 €m)	35-40%	-	ATI 1
2 (95.2 €m)	-	45-50%	Manutencoop
3 (83.8 €m)	30-35%	45-50%	Dussman Service S.r.l
4 (192.2 €m)	35-40%	-	ATI 1
5 (95.1 €m)	35-40%	-	ATI A7
8 (105 €m)	-	45-50%	Manutencoop
9 (93.8 €m)	30-35%	45-50%	Manutencoop
10 (112.5 €m)	35-40%	-	ATI 1

Source: Table 3 of the AGCM infringement decision, case I785

The anomaly observed in the bidding behaviour led to the launch of a full-fledged investigation which confirmed the bid-rigging conduct involving the two major cooperatives, in breach of Art. 101 TFEU, also based on the evidence of information exchange to coordinate the bidding strategy. The AGCM infringement decision were upheld by the Courts.

15. Another example where the screening allowed the detection of a cartel was an investigation on the Consip tender held in 2015 for consultancy services on the use of European structural funds.

Box 2. Tender for consultancy services on the use of European structural funds⁸

⁸ See the AGCM case no. I796 - SERVIZI DI SUPPORTO E ASSISTENZA TECNICA ALLA PA NEI PROGRAMMI COFINANZIATI DALL'UE, infringement decision no. 26815 of 18/10/2017, published in the AGCM Bulletin no. 43/2017, available at: [https://www.agcm.it/dotcmsCustom/getDominoAttach?urlStr=192.168.14.10:8080/41256297003874BD/0/CFAE30C13B043AA8C12581D700584B73/\\$File/p26815.pdf](https://www.agcm.it/dotcmsCustom/getDominoAttach?urlStr=192.168.14.10:8080/41256297003874BD/0/CFAE30C13B043AA8C12581D700584B73/$File/p26815.pdf)

The tender worth of 66.5 million of Euro was divided in 9 lots, with a limit in the number and total value of lots that each firm could be assigned: maximum 3 lots per firm and for a maximum total amount of 27 million of Euro. On the supply side, the major market operators were Ernst & Young, PwC, KPMG and Deloitte while local and regional public administrations were the typical clients of these consultancy firms.

By observing the financial offers, the AGCM noted a coordinated scheme where each consultancy firm presented the best bid only in some lots and cover bids in others lots and the best bids never overlapped, as shown in Table 2 below.

Table 2 – Discount patterns in the tender for technical and advisory services on the use of European structural funds

	Lot 1	Lot 2	Lot 3	Lot 4	Lot 5	Lot 6	Lot 7	Lot 8	Lot 9
KPMG	30%	30%	10%	14%	11%	14%	10%	15%	30%
EY	11%	-	31%	11%	13%	31%	31%	11%	-
PwC	-	13%	13%	12%	32%	-	-	-	13%
Deloitte	10%	11%	13%	31%	12%	10%	-	31%	14%

Source: Table 3 of the AGCM infringement decision, case I785

In the Authority’s opinion the four consultancies coordinated their tender strategies to safeguard their respective market shares and obtain high prices, while excluding the fringe competitors.

The key evidence was: chessboard design of the bids; two specific price-reduction ranges; and cover bids with the purpose of altering the economic score. The ranking of the bidders was based on the total score, given by the sum of the points obtained from the technical offer (max 70) and the economic offer (max 30). Each of the four consultancies knew they would obtain ca. 70 points from their technical offer, while fringe competitors would hardly reach 60: the risk came from the economic offer.

The score for the economic offer was based on a formula that provided higher points to price discounts below the mean compared to those below than mean. This means that, thanks to the supporting bids (i.e. price reduction 10-12%), the designed winner could offer a lower discount with respect to potential outsiders.

The parties under investigation justified the price-discount patterns and contracts allocation on the basis of historical positioning, regional presence, transfer costs. However, the bidding pattern together with the other evidence collected during the dawn raids (contacts and exchange of information, meetings in preparation for the tender, simulations before the submission of bids leading to outcomes very similar to the actual ones) were considered sufficient to establish the infringement and rebut the parties’ arguments. The AGCM infringement decision has been upheld by the administrative courts.⁹

4. The use of screening methods during proceedings

16. The examples described below highlight the Authority’s practice in using data screening methods in bid-rigging investigations, which are used to generate “endogenous”

⁹ The parties have lodged an appeal to the Court of Cassation, still pending.

evidence which has to be confirmed or supported by the “exogenous” evidence, that is, the evidence gathered during the investigation especially through dawn raids.

4.1. Screening methods used to assess the scope of the infringement

17. This case concerns an investigation launched following an anonymous complaint concerning an alleged collusion between four companies in public tenders for the supply of water meters¹⁰.

18. Since the documents submitted by the whistle-blower referred to a small subset of contracting authorities and auctions, the Authority decided to request tender data from other contracting authorities in order to address two key questions: a) whether the evidence contained in the documents of the anonymous complainant was supported by and/or consistent with the analysis of the bidding behaviour, and b) whether the anticompetitive agreement was larger in scope. In particular, the Authority collected data from 57 (local) contracting authorities, concerning 442 auctions and 1,290 bids (both winning and non-winning bids) and carried out a calculation/estimation of the discount offered by each party in each auction. Discount data were analysed in order to identify a significant difference between discount of winning bid and of second/third best bids and establish in which tenders such a pattern in the data would be observed¹¹.

19. The analysis of bidding data confirmed the whistle-blowing anonymous information and the evidence collected during the dawn raids (in particular contacts between the parties via Skype and WhatsApp) that the parties had agreed to a market sharing scheme, by coordinating winning bids and cover bids and influencing tender specifications to exclude possible competitors in 166 lots. Furthermore, the analysis of bidding data was used to extend the scope of the alleged infringement so to include auctions for which there was no specific documentary evidence, but with similar bidding patterns.

20. The sanctioning decision of the AGCM (10 million of euro overall) has been appealed by the parties.

4.2. Screening methods used to prove the infringement

21. This last example concerns tenders for forest aerial fire-fighting services and helicopter rescue services, demanded by different regional contracting authorities across the entire national territory¹². The Authority received a complaint alleging a coordination between seven companies aimed at limiting competition between them in the participation in many public tenders for forest fighting activities by regional authorities across Italy.

¹⁰ See AGCM case no. 1835 - *MERCATO DEI CONTATORI D'ACQUA*, infringement decision no. 29981 of 01/02/2022, published in the AGCM Bulletin no. 6/2022, available at: [https://www.agcm.it/dotcmsCustom/getDominoAttach?urlStr=192.168.14.10:8080/41256297003874BD/0/6531B11B93683651C12587F0003C6EF9/\\$File/p29981.pdf](https://www.agcm.it/dotcmsCustom/getDominoAttach?urlStr=192.168.14.10:8080/41256297003874BD/0/6531B11B93683651C12587F0003C6EF9/$File/p29981.pdf)

¹¹ STATA was utilized as programming language to carry out the task which was supplemented by manual analysis of anomalies.

¹² See AGCM case no. 1806 - *AFFIDAMENTO APPALTI PER ATTIVITÀ ANTINCENDIO BOSCHIVO*, infringement decision no. 27563 of 13/02/2019, published in the AGCM Bulletin no. 9/2019, available at: [https://www.agcm.it/dotcmsCustom/getDominoAttach?urlStr=192.168.14.10:8080/41256297003874BD/0/5F57ADB103AA9703C12583B3004E9F7F/\\$File/p27563.pdf](https://www.agcm.it/dotcmsCustom/getDominoAttach?urlStr=192.168.14.10:8080/41256297003874BD/0/5F57ADB103AA9703C12583B3004E9F7F/$File/p27563.pdf)

22. In this case, the evidence generated by the data analysis assumed an important weight in the overall evidence supporting the agency's allegations, since the evidence acquired through dawn raids proving some communications between the parties was relatively limited.

23. According to the Authority, the parties implemented the following conducts:

- Participation in tenders individually or in “temporary” joint ventures in such a way that for each tender there was only one bidder (individually or in joint venture) who succeeded in winning the contract with no or very low or negligible discounts (often less than 1%);
- Coordination to boycott tenders so as to make them unsuccessful and lead the contracting authority to re tender the contract by private treaty to the previous contractor;
- Exclusionary mechanisms aimed at preventing the possibility of competitive participation by operators who are not by operators who are not part of the agreement;
- Very low discounts offered to contracting authorities.

24. The AGCM collected data from 43 tenders over the period 2005 2017 and carried out an analysis of winning bids, cross-checking with cost information. In 79% of the tenders (number and value awarded), the parties to the proceedings did not compete against each other (including through the participation in joint ventures). Looking only at the tenders awarded to the parties, 79% of the value awarded concerns bids with discounts of less than 1% and 88% concerns bids with very low discounts of less than 5%. Moreover, the AGCM analysis allowed to demonstrate that alternative explanations provided by the parties of their behaviour were not credible. The AGCM infringement decision has been confirmed by the Courts.

5. Challenges and opportunities offered by screening tools

25. In the Authority's experience data screening tools pose a number of challenges. When used in supporting the decision of whether to open an investigation, it is not always clear what types of anomalies to look for in the data and, as resources are limited, it is important to be guided by some prioritization principles such as industries with structural features conducive to collusion or markets for which the Authority has acquired prior knowledge. When data screening is used during the investigation, the analysis can become more structured and focus on a specific data pattern in light of the evidence gathered during the investigation. However, care is needed to avoid the risk of cherry picking and false positives.

26. Another important consideration is that data screening can be a rather complex, time consuming and resource intensive exercise and there is the risk, if the focus is on single tenders, of missing a broader collusion scheme involving also other products or services. For this reason, whenever appropriate or feasible, the Authority has extended its screening analysis to other tenders, involving other contracting authorities not initially included in the sample.

27. Finally, the use of screening tools raises the issue of standard of proof. In the Italian and EU case law, it is for the Authority to demonstrate “the intrinsic oddity of the conduct or the absence of alternative explanations”, in case of circumstantial evidence alone (i.e., no direct contact between parties). In other words, the reconstruction proposed by the

Authority should be the only one able to explain the facts or in any case clearly preferable to any alternative hypothesis: the so-called principle of “narrative consistency”. Indeed, the parties under investigation may invoke features like tender design, firms’ heterogeneity, incumbency advantages, cost differences, opportunity costs as potential rational explanation of the observed anomalies. On the contrary, evidence of contacts between the parties or information exchange shifts the burden of proof on the undertakings, which shall demonstrate that such behaviour does not stem from collusion. In the AGCM experience, circumstantial evidence alone rarely builds a solid case: evidence of contacts is key, and dawn raids are crucial to collect such evidence.

28. At the same time, data screening provides for several opportunities. In the experience of the AGCM, screening is a powerful tool to refine prioritization, by flagging suspicious pattern and orienting enforcement and screening criteria may strengthen the “narrative consistency” of the AGCM’s allegations.

29. Finally, simple screening may be effective as demonstrated by the AGCM practice to build “rough” indicators suitable to be complemented by further analysis, in order to reach preliminary conclusions regarding past episodes of bid rigging. In this perspective, screening tests have not been utilised to make an ex-ante assessment of the probability of collusion in a single tender case. Unlike the typical academic approach by which the researcher builds up one single indicator (by controlling for the impact of all the main factors), the AGCM strategy has been to extract as much information as possible by combining several (but simpler) indicators.

6. Conclusions

30. Data screening tests have been developed by the Italian Competition Authority in particular for the bid-rigging investigations. In the AGCM’s practice, data analysis can be used to open investigations, provide valuable endogenous evidence that contributes to the finding of an anticompetitive agreement or helps defining its scope in terms of number of tenders involved. The Authority finds that data screening can help identifying potential anomalies in the bidding behaviour but ultimately the required standard of proof is normally met by combining both endogenous and exogenous evidence.

31. The digitalization of the procurement process will offer opportunities to develop diagnostic tests based on the use of databases, algorithms and machine learning systems. Over the past few years, ANAC has been working to improve and enhance the National Database of Public Contracts (BDNCP) which could be potentially used to set up a system to develop simple and easy-to-implement methodologies and tools for collecting and analysing large volumes of information available in computerized databases, in cooperation with procurement agencies.