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Algorithms and Collusion - Note from Italy

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More documents related to this discussion can be found at

www.oecd.org/daf/competition/algorithms-and-collusion.htm

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1. Introduction

1. The competitive landscape in the digital economy is increasingly changing due to the combination of big data with highly advanced IT tools such as pricing algorithms and machine learning, which enable to capture and process vast volumes of data in fast and efficient way and to create new goods and services. There is a growing number of firms using computer algorithms to improve their pricing models, customize services and predict market trends, which could generate efficiencies. However, the widespread usage of algorithms could also pose possible anti-competitive effects by making it easier for firms to achieve and sustain collusion.

2. The Italian Competition Authority (AGCM or Authority) welcomes the opportunity provided by the OECD Competition Committee to discuss algorithms and their implications for the antitrust policy against collusive behavior. This contribution provides an overview of the Authority's initial thoughts based on its very limited experience in this field and it outlines some of the challenges that the agency foresees, in light of the Italian legal framework and case law, as well as the characteristics of the Italian economy.

2. Algorithms and collusion

3. As outlined in the OECD background paper, the use of pricing algorithms by professional sellers is becoming increasingly common, if not ubiquitous given that online markets and marketplaces are indeed characterized by a particularly high degree of transparency and provide companies with an unprecedented ability to gather and process large amounts of data for decision making.

4. On the demand side, comparison tools and electronic marketplaces allow consumers to quickly compare prices and other conditions of products or services across a large number of online sellers. This facilitates consumer choice and leads firms to compete more aggressively on prices[1]. These positive effects on competition depend on the extent to which consumers are provided with transparent and trustworthy information and might thus be undermined by unfair practices that can distort consumer choice. As an authority with dual competence both in competition and consumer protection, the AGCM is well placed to tackle such possible unfair practices and safeguard trust in reliable and independent online comparison tools[2].

[1] As affirmed by the European Commission, comparison tools play an increasingly important role in EU consumers' decision-making: 74% of EU consumers have used a comparison tools and 40% have a good knowledge of comparison tools. See: European Commission, "Study on the coverage, functioning and consumer use of comparison tools and third-party verification schemes for such tool" (2016), p.17 available at http://ec.europa.eu/consumers/consumer_evidence/market_studies/docs/final_report_study_on_comparison_tools.pdf.

[2] For example, in April 2015 the Authority closed with commitments an investigation concerning the potential infringement of the rules on unfair commercial practice by two companies ("Facile.it" and "6Sicuro") for online comparison activities related to consumers car insurance on their respective websites. One aspect of the investigation concerned the alleged lack of transparency of the comparison websites which may have created ambiguity with regards to both the outcome of the comparison and the possible commercial interest of the comparison website to orient consumers towards some specific products. A second aspect concerned the inclusion, in the results produced by the comparison website, of some accessory

5. On the supply side, rational companies would naturally exploit the same degree of price transparency to identify the best positioning of their offer in the market. Indeed, sellers can closely monitor – also through ad-hoc software that can be bought off the shelves – the evolution of prices of their competitors and easily define and implement dynamic pricing strategies. Indeed, pricing algorithms are increasingly used even by small professional online sellers, which try to gain visibility in marketplaces and to maximize profits through reactive dynamic pricing strategies, by using third-party software solutions. In fact, a number of specialized software developers offer solutions than allow even small companies to implement "strategic" dynamic pricing strategies, offering tools to "*auto-detect pricing wars*" as well as to "*help drive prices back up across all competition*"[3].

6. At the same time, pricing algorithms might lead to increased individual-based price discrimination, insofar as companies can collect and analyze a broad range of information that is revealing of individual online buyers' willingness to pay. It has been observed that this information can be used by companies to offer individualized prices.

7. While fostering increased competition, a high degree of price transparency and the extensive use of pricing algorithms in online marketplaces may also raise competition concerns. Pricing algorithms may increase the ability and incentives of companies to reach, monitor and enforce both explicit and tacit collusion. The use of pricing algorithms might increase the likelihood that cheating on the collusive "agreement" will be detected as well as the speed of punishment. In fact, companies can monitor their rivals' prices and detect changes in real time. Also, (strategic) dynamic interaction occurs more quickly than in traditional markets, thereby easing companies' ability to implement harsh punishment strategies, making punishment stronger, swifter and more certain.

8. In addition, it was observed above that pricing algorithms might also be used by small sellers that operate in online marketplaces: collusive conducts that were typically confined to oligopolistic and highly concentrated markets may therefore arise also in markets which do not have structural features that facilitate collusion. This is particularly relevant in Italy, where many market are fragmented on the supply side.

9. Another challenge posed by the widespread use of algorithms for strategic price decisions concerns the interplay between the algorithms used by the online sellers and the algorithms adopted by the online platforms in which these sellers operate. Sellers' pricing strategies may be affected by the algorithms used by online platforms and marketplaces that determine sellers' visibility. In fact, either directly or indirectly, online platforms define the "rules of the game", thereby affecting firms' incentives to adopt certain pricing strategies rather than others. Any attempt to an intra-platform collusion may fail in presence of fierce inter-platform online competition: therefore, it will be important to understand the impact of pricing algorithms considering both intra-platform and inter-platform online competition[4].

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parameters which were not requested by consumers, making comparison between different products less transparent.

[3] These are some of the advertising claims used by companies selling this type of software.

[4] An even more complex situation arises when the platform is vertically integrated and operates also as a seller competing vis-à-vis other platform users: in this scenario, the interplay between the platform's and sellers' algorithms might be particularly sensitive. It is not clear yet if this phenomenon is common or not, and/or if there are spillover effects on offline competition.

2.1. Algorithm and explicit collusion

10. The impact that online pricing algorithms might have as a tool to sustain cartels – by increasing transparency and thus the ability to police the agreement – does not appear to raise entirely new issues for the Authority, but extends the potential breadth of such issues. Indeed, the current legal framework regarding cartels seems adequate to address the issues raised by algorithms, as they merely constitute a more sophisticated tool to implement the infringement, on the one hand, and monitor deviation and retaliate, on the other.

11. For instance, algorithms may increase the effectiveness of explicit collusion, when companies use the same algorithm to define prices. This scenario is similar to the "traditional" situation in which companies rely on an "outsider" not only to define prices consistent with a collusive outcome but also to monitor and enforce the agreement. For instance, in 2015 the Authority sanctioned two regional cartels in the concrete sector, which was implemented by a consultancy company which, on behalf of the nine concrete producers, gathered relevant data and set prices in order to keep historical market shares[5].

2.2. Algorithms and concerted practices

12. Innovative questions, both in terms of policy and actual enforcement, might arise because of the impact that algorithms may have on coordinated conduct that falls short of explicit anti-competitive agreements, i.e., cartels. From a policy perspective, the question arises on whether or not the scope of antitrust law should be revised to take into consideration the blurring of the distinction between coordinated interaction (tacit collusion) and interdependent pricing. From an enforcement perspective, algorithms may play several roles in facilitating coordinated interaction, e.g., as a monitoring or signaling tool, thus limiting even more the need for (in)direct interaction between competitors. As a result, competition authority might experience increasing difficulties in qualifying the infringement, finding evidence and determining antitrust liability.

13. As summarized below, the AGCM practice and the Italian case law, consistently with the EU antitrust experience, have addressed several forms of coordination between competitors which fall short of a full-fledged agreement, through the legal concept of "concerted practice"[6], which has been enriched over time to capture various cooperation scenarios.

14. Consistently with the European case law, the Italian Courts have indicated that a concerted practice "*falls short of a formal agreement but consists of some form of coordination between competitors which consciously replaces the risks of competition with cooperation*". The Italian Council of State observed that the absence of a written agreement is "*easily understandable, taking into account that undertakings that intend to engage in an anti-competitive conduct and are aware of its unlawful nature would try with all means to conceal it*". Therefore, "*any kind of contact, be it direct or indirect, between undertakings suitable to affect the behavior of competitors in the market is*

[5] Case N. I772 – Concrete Cartel in Friuli Venezia Giulia Region and I778 – Concrete Cartel in Veneto Region (both cases are still pending before the Courts)

[6] Article 2 of the Italian Competition Act 1990, just as Article 101 of the TFEU, prohibits "agreements" and "concerted practices" which have as their object or effect the prevention, restriction or distortion of competition, without providing definitions of "agreement" and "concerted practice".

relevant"[7]. In following judgments, the Italian Courts specified that what matters is the anti-competitive content, i.e., "*the capacity of a behaviour, irrespective of how it is carried out",* to replace competition with cooperation[8]. Against this background, it is not essential to distinguish between agreements and concerted practices: "*it is far more important to distinguish between forms of collusion that fall within antitrust prohibition and mere parallel behaviours*"[9].

15. With regard to evidentiary standards in concerted practice cases, the Italian judges acknowledged that "in the field of forbidden agreements the acquisition of a 'smoking gun' is rare and an excessively rigorous standard of proof would risk to undermine the purpose of antitrust law [therefore] it may be considered sufficient (and necessary) the identification of indications of unlawful forms of collusion and coordination, provided such indications are serious, precise and consistent"[10]. Importantly, the Italian Council of State specified that "the fact that the evidence is indirect (or circumstantial) does not necessarily imply that it is less strong"[11].

16. In relation to the general principles governing the burden of proof, consistently with the jurisprudence of the European Union, in case of circumstantial evidence it is for the Authority to demonstrate "the intrinsic oddity of the conduct or the absence of alternative explanations, so that, in a context of sound competition, the behavior of the undertakings would have surely or at least conceivably been different from the one observed". Conversely, evidence of contacts between the parties or information exchange, together with the parallel behavior observed on the market, shifts the burden of proof on the undertakings, which shall demonstrate that such parallel behavior does not stem from collusion [12].

17. For the Authority to substantiate a concerted practice on the basis of circumstantial evidence alone, the key factor appreciated by the Courts is the so-called "narrative consistency", meaning that the reconstruction proposed by the Authority, underpinned by several coherent clues, should be "the only one able to explain the facts or in any case clearly preferable to any alternative hypothesis"[13].

18. In this context, a critical issue dealt by the agency practice and Italian case law is under what conditions information exchange between competitors can be viewed as a facilitating practice or an infringement itself. Some precedents described below may be helpful in exploring this issue in a situation involving algorithms: to investigate, for example, under what conditions the repeated exchange through algorithms of information

[7] Ex multis, Council of State, judgment no. 1671, 20 March 2001, *Fornitura pezzi di ricambio caldaie a gas*.

[8] Council of State, judgment no. 4118, 27 July 2001, *Istituti Vigilanza Sardegna.*

[9] Council of State, judgment no.1305, 5 March 2002, *RAI-RTI.*

[10] Ex multis, Council of State, judgment no. 3032, 13 June 2014, *Gare assicurative ASL e aziende ospedaliere campane* and Council of State , judgment no. 2514, 18 May 2015, *Vendita al dettaglio di prodotti cosmetici*.

[11] Council of State, judgment no. 3047, 11 July 2016, *Gare gestioni fanghi in Lombardia e Piemonte*.

[12] Ex multis, Council of State, judgment no.4123, 4 September 2015, *Tariffe traghetti da/per la Sardegna* and Council of State, judgment no.2837, 3 June 2014, *Logistica Internazionale*.

[13] Ex multis, Council of State, judgment no. 5274, 5275, 5276, 5277, 5278, 24 October 2014, *Vendita al dettaglio di prodotti cosmetici*.

on prices (or even of price intentions, in the hypothesis that price increases are "announced" at night-time, when purchases are sporadic) might amount to a breach of competition rules, absent evidence of direct contacts between competitors.

19. The Italian case law has clarified that the assessment of information exchange should be made case-by-case on the basis of the type of information exchanged and the potential effects on the relevant market. The Italian Courts underlined that, for an information exchange to be anti-competitive, it is not necessary that the market be oligopolistic and highly concentrated[14], even though they recognized that information exchange may raise particularly serious concerns in oligopolistic markets[15].

20. The Council of State has repeatedly highlighted the importance of price as the primary competition factor, concluding that "*any collusive conduct by which undertakings alter the mechanism of price formation and increase price above the level resulting from the matching between supply and demand*" should be considered unlawful[16]. With specific regard to price announcements, in its decision regarding the case *I446 - Compagnie Aeree-Fuel Charge* (see box), the Administrative Tribunal of Lazio specified that in general terms price announcements to consumers do not constitute *per se* a breach of competition rules. However, in case such announcements appear "*intended to allow competitors to mutually observe reactions and adapt themselves, while verifying each other's' acceptance by conclusive facts, they may be considered as evidence of collusion*" [17].

[14] Council of State, judgment no. 2199, 23 April 2002, *RC Auto.*

[15] Council of State, judgment no. 1397, 16 March 2006, *Test diagnostici per diabetici.*

[16] Council of State, judgment no. 102, 17 January 2008, *Prezzi del latte per l'infanzia* and judgment no. 3026, 23 May 2012, *Prezzo del GPL.*

[17] Administrative Tribunal of Lazio, judgment no. 8951, 14 September 2007, *Compagnie Aeree – Fuel Charge.*

Box 1. The case I446 - Compagnie Aeree-Fuel Charge

In August 2002 the AGCM carried out an investigation, pursuant to Article 2 of Law no. 287/90, into Alitalia Linee Aeree Italiane Spa, Meridiana Spa, Alpi Eagles Spa, Air Europe Spa, Volare Airlines Spa and Air One Spa, concerning the simultaneous application by some airlines of the same additional charge (the so-called fuel surcharge) on all domestic routes.

In June 2000, Alitalia, followed by the other airlines, had introduced a surcharge of approximately €5 on passenger flights on all domestic routes, which it had justified on the basis of the increase in the cost of aircraft fuel. Two months later, Alitalia had announced that the surcharge would be raised to approximately €12 from 1 September 2000; an equal increase had also been introduced by the other airlines.

While the introduction of the fuel surcharge had been preceded by intense bilateral and multilateral contacts between the undertakings concerned, no evidence of such contacts were found as regards its increase.

However, regarding the competitors' policy of falling into line with the content of announcements made by the leader Alitalia, the Authority noted that the business practice of announcing price increases before they were actually applicable (i.e. before clients were actually able to buy air tickets at the new prices) was equivalent to engaging in an indirect exchange of information, since it allowed other companies to observe the reciprocal reactions on the various markets and to adapt accordingly. In the ICA's view, this practice was likely to reduce the firms' reciprocal uncertainty regarding future behavior and hence the risk normally inherent in any unilateral change of practice by market operators.

The Authority observed that the practice was designed to coordinate the respective price strategies of the carriers and constituted a serious form of competition restriction. The gravity of this anti-competitive practice also stemmed from the fact that the agreed application of the fuel surcharge by the parties had been followed by a corresponding increase in the price of air transport by other airlines. The rise in prices resulting from the agreement had thus become a focal point towards which other operators not participating in the agreement were induced to converge as a result of normal oligopolistic market dynamics.

The decision was upheld by the Administrative Tribunal of Lazio, which observed that in general terms price announcements to consumers do not constitute per se a breach of competition rules. However, in case such announcements appear "intended to allow competitors to mutually observe reactions and adapt themselves, while verifying each other's' acceptance by conclusive facts, they may be considered as evidence of collusion". In that case, Alitalia's announcement should "be assessed in light of the collusive context that already led to the introduction of the fuel surcharge two months earlier; through that tool, Alitalia informed competitors about its decision to change the amount of the surcharge […] and expected the reaction of the other carriers" [18].

The AGCM's decision was not further appealed before the Council of State.

[18] Administrative Tribunal of Lazio, judgment no. 8951, 14 September 2007, *Compagnie Aeree – Fuel Charge.*

21. When addressing the relevance of the content of the information exchanged, the Courts, with reference to the case *I575 - Ras-Generali/Iama Consulting* (see box below), clarified that *"the presumed public nature of the information exchanged […] cannot exclude the unlawfulness of a concerted agreement",* insofar as the data in question were not easily available on the market in the same form and modality: "*the key point is not the public or non-public nature of the data exchanged, but their potential and suitability to restrict competition*"[19]. This judgment might be particularly relevant in a scenario in which algorithms have the potential to enable competitors to "communicate" and systematically exchange non-confidential information on prices in real time, for example by using the software provided by the same developer or the software of the platform.

[19] Council of State, judgment no. 9565, 29 December 2010, *Ras-Generali/Iama Consulting*.

Box 2. Ras-Generali/Iama Consulting

In 2004, the Italian Competition Authority carried out formal proceedings against nine insurance companies and the independent consultant Iama. Iama Consulting had set up a database by which collated and disseminated detailed information on life and pension insurance products on behalf of the insurance companies.

The information exchanged was public because the data had to be disclosed to customers pursuant to the Italian regulation and were often available on the insurance companies' websites. However, the information was supplied to Iama Consulting by the insurance companies, and not independently collected from the market by the consultant.

The AGCM held that the public nature of the information exchanged did not shield the conduct from competition challenge because the supply of information to Iama Consulting by the undertakings made the dataset more trustworthy than information collected on the web. The Authority concluded that the conduct amounted to a concerted practice aimed to the horizontal exchange of sensitive information between insurance companies.

The Administrative Tribunal of Lazio dismissed the Authority's decision, arguing that the information exchanged was public, even though not in the public domain, and therefore it could not be considered "sensitive", as long as there was no particular uncertainty, opacity or grey area which could encourage competition.

The Council of State, however, overruled the Administrative Tribunal of Lazio judgment. It argued that through the concerted practice the parties "had secured a flow of information regarding tariffs and general conditions of contracts, which do not appear reasonably irrelevant with a view to influencing the respective commercial strategies". In the view of the Council of State, the companies regularly and widely exchanged sensitive information (since it affected the commercial strategy of each company), which would be accessible on the market only with additional costs and with higher margins of uncertainty and in any case would not be available "in a complete, aggregate, periodic and comparative way".

The Court also specified that "the presumed public nature of the information exchanged […] cannot exclude the unlawfulness of a concerted agreement", insofar as the data in question were not easily available on the market in the same form and modality: "the key point is not the public or non-public nature of the data exchanged, but their potential and suitability to restrict competition" [20].

22. More recently, the Council of State specified that an information exchange amounts to a competition infringement insofar as it concerns sensitive information "*able to disclose, orient and reveal in advance market behaviours of competitors*", regardless of whether the data exchanged are easily available or not. In this respect, making reference to the Guidelines on the applicability of Article 101 TFEU to horizontal co-operation agreements (paragraph 62), the Italian judges outlined that a situation where only one undertaking discloses strategic information to its competitors, and they accept such information, can constitute a concerted practice. In fact, when a company receives

[20] Council of State, judgment no. 9565, 29 December 2010, *Ras-Generali/Iama Consulting*.

strategic data from a competitor "*it will be presumed to have accepted the information and adapted its market conduct accordingly unless it responds with a clear statement that it does not wish to receive such data*"[21].

3. Conclusions

23. The AGCM acknowledges that algorithms will become increasingly widespread in business practices, bringing numerous benefits for both companies and consumers, helping them in making certain kinds of decisions in contexts of rapidly changing and complex markets. In some instances, pricing algorithms might pose challenges to competition policy as well as to other areas such as privacy and intellectual property rights[22].

24. As illustrated in the previous section, the current legal framework regarding cartels and concerted practices appears to be adequate to address the issues raised by the use of pricing algorithms, as long as they serve as a more effective tool to implement the infringement or a practice facilitating it. The issue of liability, the notion of "concerted practice" and the associated evidentiary standards developed by the case law and practice over the years can be adapted to address this type of scenarios. In such cases, the assessment of the Authority can benefit from the above mentioned discussion around the conditions under which information exchange, signaling and conscious parallelism can be considered - in absence of direct contact between competitors - an infringement or a facilitating practice.

25. More complex challenges for the Authority and the Courts could arise in scenarios where algorithms are self-learning and therefore capable of recognizing mutual interdependency and readapting behaviour to the actions of other market players, without inputs from humans. In particular, the most difficult question is under which conditions antitrust liability can be established in situations where the links between the algorithms and the human beings become more blurred: in such cases determining the liability will depend mainly on the facts at hand.

26. The debate around algorithms and competition policy is still at an initial stage and the Authority considers it premature the question whether regulatory interventions are desirable without an in-depth understanding of this phenomenon: for instance, continuing research in the ability of algorithms to reduce barriers to coordinated interactions would be extremely valuable especially if competition authorities consider strengthen their tools for the coordinated effects analysis.

27. To this end, market studies may represent a flexible instrument to acquire knowledge and expertise on novel issues like algorithms: as such, the Authority – jointly with the Italian Data Protection Authority and the Italian Communications Authority – has recently launched a market study on big data, including the various possible competitive implications linked to the rise of algorithms. Still with a view to improving its understanding of this novel issue, the AGCM is currently expanding its skills and expertise also in the area of IT and artificial intelligence.

[21] Council of State, judgment no. 3252, 27 June 2014, *Logistica Industriale*.

[22] For instance, in the 2010 the Authority closed with commitments an abuse of dominant position investigation against Google (Case Number A420 - FIEG / Google), regarding the use of algorithms to collect, aggregate, display and share information goods protected by IP rights.

28. In the Authority's view, competition authorities are particularly well placed in addressing the antitrust concerns posed by pricing algorithms given the economy-wide perspective of competition law and the experience already gained in cases involving digital markets. Furthermore, in rapidly changing or innovation driven markets, antitrust enforcement may prove more effective in preserving competitive dynamics while it might difficult to design regulatory frameworks which are sufficiently flexible so as to be "future-proof" and "fit for purpose" in light of the pace of technological developments. Finally, competition agencies with competence also in consumer protection enjoy the additional advantage of employing a wider toolbox to maximize the benefits of the use of algorithms for consumers.