Organisation for Economic Co-operation and Development

DIRECTORATE FOR FINANCIAL AND ENTERPRISE AFFAIRS
COMPETITION COMMITTEE

Algorithmic competition – Note by Mexico

14 June 2023

This document reproduces a written contribution from Mexico submitted for Item 5 of the 140th OECD Competition Committee meeting on 14-16 June 2023.

More documents related to this discussion can be found at
https://www.oecd.org/competition/algorithmic-competition.htm

Antonio CAPOBIANCO
Antonio.Capobianco@oecd.org, +(33-1) 45 24 98 08

JT03519391

Mexico

Introduction

1.   The evolution of technology and the increasing use of data processing tools have allowed a greater number of firms to use algorithms with the aim of being innovative and efficient in their processes. The possibility of improving price models, making predictions about trends, generating recommendations for users, among others, are part of the benefits of using algorithms.

2.   Along with these advantages, algorithms have brought with them concerns about their possible adverse effects on the competition process. Various authorities and academics have pointed out possible anticompetitive effects that may arise from the use of algorithms.

3.   This contribution describes the experience of the Mexican Federal Economic Competition Commission (COFECE or Commission) regarding the incidence of algorithms in anticompetitive practices, relative monopolistic practices (or abuse of dominance) and absolute monopolistic practices (cartel agreements or collusion), which theories of harm are under the scope of the legal framework provided by the Federal Economic Competition Law (LFCE for its initials in Spanish) and concludes with some challenges lying ahead for COFECE.

4.   It is worth noting that the provided answers in this contribution derive from the experience of COFECE's Investigative Authority pertaining ongoing investigations and its activities monitoring markets; hence, statements included are limited in this regard.

1. COFECE's experience concerning algorithmic competition.

5.   It is possible to identify and categorize algorithms using different criteria,[1] such as: i) the output produced and task performed,[2] ii) the type of input they use,[3] iii) and their learning method.[4] Algorithms are of common use in digital markets and have been under antitrust scrutiny, Mexico not being an exception to this.

6.   Given the proliferation of new markets, changes in business structures and, in general, the growing relevance of digital markets in several industries, the Commission, has observed an increasing use of algorithms by economic agents in Mexico. Through monitoring tasks, COFECE has observed that companies have started to use algorithms to streamline their procedures, including price determination, monitoring and/or comparing competitor's prices, differentiation, and characterization of demand, among others.

7.   In some cases, such as in the determination of consumer prices, the construction of algorithms has been achieved through the use of different inputs such as cost information,

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[1] Bundeskartellamt and Autorité de la concurrence, *Algorithms and Competition*, 2019. Available at: https://www.autoritedelaconcurrence.fr/sites/default/files/algorithms-and-competition.pdf

[2] For example: monitoring and collecting data, pricing, personalization and ranking of products and services.

[3] E.g. numerical inputs, text inputs, personal data, aggregate data, own data or competitors data.

[4] Self-learning algorithms or machine-learning algorithms, and fixed algorithms.

consumer characteristics, competitor's prices, or other relevant variables for the economic agent.

8.   When used for tracking competitor's prices COFECE has noted that it is possible to program algorithms through automated online searches. These algorithms have been particularly used in industries where it is possible to consult the updates on the prices electronically; that is, those where the level of transparency of market variables such as prices is high.

9.   Similarly, the Commission, through monitoring activities, has observed algorithms used to characterize consumers. There are cases, such as e-commerce markets in which, depending on information such as geographic location (based on tracking data such as IP addresses), consultation hours, query history, and search in electronic media, among others, the result achieved by the algorithm is to make more accurate and targeted predictions about consumer preferences. Notwithstanding the former examples, COFECE has noticed a variety of algorithms specific to each industry or market.

1.1. Algorithms and abuse of dominance

10.   COFECE's experience in digital markets has increased in the last few years, with investigations for abuse of dominance in the market for e-commerce platform services,[5] the market for digital advertising and related services,[6] and the market of development, distribution and payment processing of mobile applications and digital content.[7] In addition, COFECE announced an investigation for barriers to competition and essential facilities in the retail e-commerce market. [8].

11.   The investigations are still ongoing,[9] so there is currently no public information related to the type of algorithms used in these markets, specific analyses performed on these algorithms or the theories of harm that might be put forward by COFECE's Investigative Authority.

12.   As for the theories of harm posed by algorithms in abuse of dominance cases, the LFCE establishes the analytical framework under which these anticompetitive practices should be analysed.

13.   Accordingly, for abuse of dominance, the LFCE establishes that the Commission must determine whether a particular conduct has the object and/or effect of unduly displacing another economic agent (exclusion), substantially impeding access to an entrant firm (foreclosure) or establishing exclusive advantages in favour of third parties (discrimination); thus, arguing how the conduct presumably harmed the competitive

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[5]   Public resolution available in Spanish at: https://www.cofece.mx/CFCResoluciones/docs/INVESTIGACIONES/V3908/1/5132847.pdf

[6]   See COFECE's press release available at: https://www.cofece.mx/wp-content/uploads/2020/08/COFECE-033-2020_ENG.pdf

[7]   See COFECE's press release available at: https://www.cofece.mx/wp-content/uploads/2022/10/COFECE-031-2022_ENG.pdf

[8]   See COFECE's press release available at: https://www.cofece.mx/wp-content/uploads/2022/04/COFECE-013-2022_ENG.pdf.This type of investigations is aimed at investigating markets and determining if barriers to competition (whether these barriers are structural, behavioral or normative) or an essential facility exist.

[9] Except for the investigation in the e-commerce market in which COFECE determined that there were no elements to determine possible anticompetitive conduct for tying.

process in a certain market. Hence, there is no distinction in terms of the type of market or the technologies used as a vehicle to generate such harm.

14.   The legal framework provided by the LFCE has proven to be flexible enough to investigate and sanction common areas of concern in competition law (exclusion, foreclosure and discrimination).

15.   COFECE is aware of other jurisdictions putting forward different theories of harm regarding exploitative conduct by dominant firms and pays special attention to how those procedures evolve to determine if those cases can be relevant for the Mexican markets.

1.2. Algorithms and cartel agreements

16.   According to the LFCE, cartel agreements are illegal *per se*, hence a main challenge is to determine whether potential algorithmic collusion could constitute an agreement between competitors. This dilemma might be aggravated in those cases where algorithms can lead to a situation of tacit autonomous collusion, where without human intervention or intention, two or more algorithms fix prices among themselves, and where an agreement between the companies is difficult to be identified.

17.   This challenge would require COFECE -after determining to sanction an economic agent following an investigation, if it were the case- to put forward arguments before the Judiciary explaining the courts about how algorithms can become a new tool for collusion in which the criteria to prove a traditional agreement between competitors could differ from the existing case law.

18.   It is worth noting that, in the case of cartel agreements or collusion, Article 53 of the LFCE establishes that the existence of an agreement between competitors that has the object or effect of: i) fixing prices, ii) restricting the quantity of products or services offered, iii) dividing the market so as not to compete for the same demand, iv) coordinating bids in public procurement, and v) exchanging information with any of the foregoing objects or effects, must be proven.

19.   In this regard, it should be noted that the LFCE does not only prohibit formal agreements between competitors, but it also bans any other type of combination, exchange of information or concerted practice among competitors with the object and/or effect of fixing prices, restricting output, allocating markets or rigging bids.

1.3. Theories of harm

20.   Theories of harm depend upon the nature of the analysis at hand. For example, regarding cartel agreements, the algorithms could be used to implement some pricing mechanism that results in similar prices for different economic agents; thus, relaxing competition among them, or it can serve to monitor the effective implementation of an agreement and avoid deviation.

21.   In the case of abuse of dominance conduct, according to the LFCE, a case-by-case analysis must be carried out to determine whether the use of algorithms is having anticompetitive effects on the market and is deliberately leading to the exclusion or foreclosure of competitors. Also, the Commission is required to prove that the economic agent has a dominant position in a given market, that the conduct being investigated is stipulated in article 56 and that it has the object or effect to exclude competitors, restrict their access to the market or establish exclusive advantages to one or some other economic agents.

22.   In this sense, as shown by international experience,[10] some algorithms may lead to the exclusion of competitors through results in which self-preference schemes, generate exclusive advantages, which could prevent the entry of new competitors. In any case, the analysis of the resulting theories of harm should also consider the possible efficiencies resulting from the conduct and balance its effects in the market.[11]

23.   In addition to this, in Mexico is necessary to examine the role of an algorithm under the analysis of investigations to determine barriers to competition and essential facilities.[12] That is, COFECE may assess the level in which an algorithm, by itself or through its execution, constitutes a behavioural or structural barrier and possesses the characteristics of an essential facility that affects competition conditions in a certain market.

24.   In any case, the generated anticompetitive effects derived from the design of algorithms must always be proven. Finally, it should be considered whether the development of algorithms responds to intellectual property interests and ensure that COFECE's intervention in these cases does not generate disincentives for innovation.

1.4. Detection of anticompetitive conducts through algorithms

25.   As part of the monitoring, follow-up, and market research activities, the Commission has also worked on the design of algorithms that allow streamlining certain processes to make more efficient use of its resources. These algorithms can be divided into i) algorithms for the processing and systematization of information, and ii) analysis algorithms.

26.   Information processing and systematization algorithms are applied to standardize the different data and inputs that will later be subject to analysis to detect possible anticompetitive conducts.

27.   COFECE's experience using algorithms has focused mainly on public procurement, as well as on the transport and energy sectors. The main objective is to enable the authority to observe patterns more efficiently than with the development of handcrafted analysis tasks.

28.   In addition, COFECE is developing artificial intelligence algorithms particularly Machine Learning and natural language processing, to facilitate the detection of possible anticompetitive conducts in various documents and information sources. For the case of forensic analysis, the idea of developing tools based on artificial intelligence and algorithms for the construction of more efficient analysis routines is also being considered.

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[10] See https://globalcompetitionreview.com/guide/digital-markets-guide/second-edition/article/self-preferencing-in-digital-markets

[11] For the case of abuse of dominance, Article 54 of the LFCE establishes that it must be proven that: i) the conduct was carried out by an economic agent with substantial power in the relevant market, ii) that the conduct falls under any of the twelve assumptions established in Article 56 of the same Law (relative monopolistic practices in the Mexican context), and iii) that the conduct had the purpose or effect of displacing other economic agents, preventing their entry or establishing advantages in favor of one or more economic agents.

[12] Article 94 of the LFCE (special procedures). For this case, it is required an evaluation of structural, behavioral, regulatory, and other characteristics of these markets to determine the impact that a certain algorithm would be generating on the competitive process of the markets.

2. Challenges ahead for COFECE

29.   COFECE faces technical and procedural challenges in the competition analysis of algorithms. On the one hand, it is important to note that much of what determines these is related to the opacity or little transparency behind the design of this type of tools.

30.   On the other hand, challenges faced by COFECE relate to having the necessary technical resources for the specialized analysis of algorithms. For example, the analysis of more complex algorithms will demand more robust technical resources.

31.   Regarding human capital, the Market Intelligence Unit when created in 2014 started with just 3 officers. Over the years, it has grown to 21 officers, most of them with postgraduate studies. The personnel who conform this Unit accounts for more than 50 years of experience analysing digital markets.

32.   As for the analysis challenges, the first is according to its complexity, to identify its anticompetitive intentionality or to identify whether it is programmed with other purposes The former considering whether algorithms can be updated and/or perfected, then producing an anticompetitive outcome.

33.   Also, the existence of algorithms and their constant updating implies collecting large volumes of information. Therefore, a very important aspect is that the technical infrastructure (specialized hardware and software), as well as any other working tools, must be improved constantly to support the collection, processing, and analysis of the mass of information examined and the computational complexity that this activity may imply. This in turn poses a budgetary challenge for COFECE because of the associated monetary costs.

34.   Likewise, the creation and/or design of algorithms may be protected by intellectual property rights. Accordingly, another relevant challenge is the type of intervention that COFECE, as a competition authority, can exercise. In other words, some challenges consist in assessing whether intervention is the best alternative to ensure competition and market access. That is, pondering which type of intervention will make markets more efficient, considering the promotion of interoperability and deciding when to incur in extreme measures such as forcing economic agents to disclose commercial strategies to their competitors without hindering innovation processes.

35.   As for the procedural challenges, gathering the necessary information for understanding an algorithm becomes complicated. Specially, when issuing requirements or requests for information to economic agents or foreign authorities.

36.   Another important challenge is time lags in the analysis. For instance, in some cases, some algorithms that worked in a certain way at the beginning of an investigation, significantly change in very short periods.

37.   Finally, another issue is that the characteristics of the evidence of anticompetitive use of algorithms will be mostly indirect evidence. Therefore, it is the COFECE's task to produce solid elements of conviction that support theories of harm so that the specialized competition courts assign sufficient value to indirect evidence for cartel cases, as well abuse of dominance cases.

3. Final remarks

38.   The Commission has learned valuable lessons regarding algorithms. First is that a deep analysis of the dynamics of these specialized tools is required to articulate the theories of harm in its cases.

39.   Other clear lesson is the importance of investing in the training of investigators. COFECE has, hired more specialized personnel in programming and the use of algorithms, as well as it has fostered the creation of a more efficient work environment in which human capital can better respond to the challenges aforementioned.

40.   Finally, there is a need for cooperation between competition, consumer, and information protection authorities to implement better solutions to potential problems posed by algorithmic competition.