Kluwer Competition Law Blog

Introducing nudging algorithms

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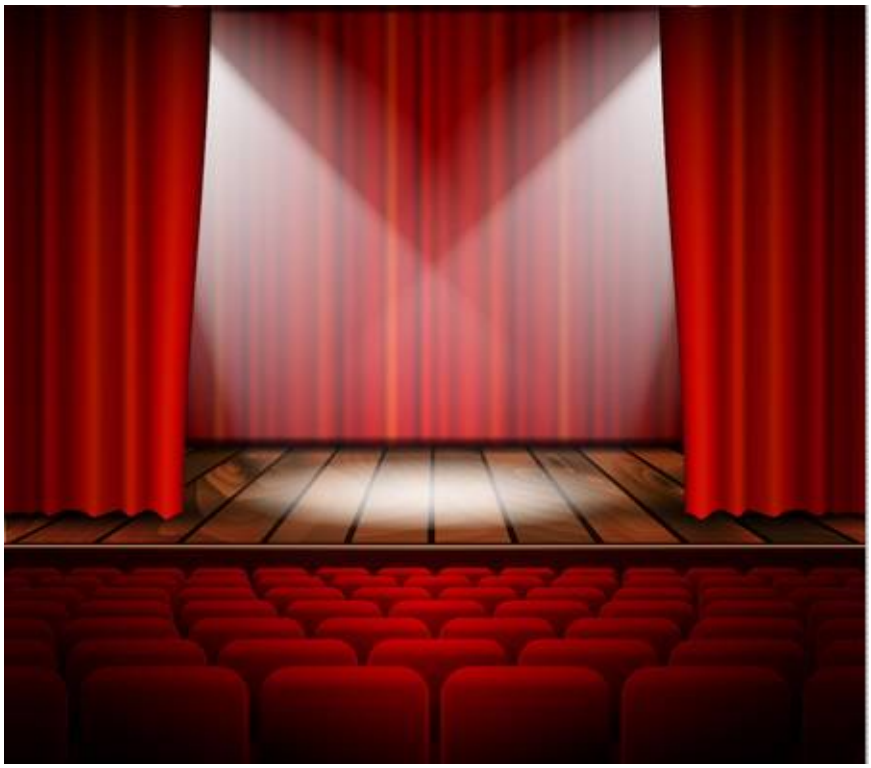

I. Artificial intelligence and pricing practices

The great Stephen Hawking said that the risk with Artificial Intelligence (AI) is not that it is malign but that it is competent. Certainly, AI has the potential to transform the way we live and interact with other people, and ultimately transform society. The debate on the challenges brought by AI and its impact on competition policy has been focused on pricing practices, mainly algorithmic collusion (i.e. algorithms setting prices leading to tacit collusion) and personalised pricing (i.e. algorithms setting individual prices with reference to consumers' personal data). However, after these practices have been examined, there is insufficient evidence and it has even been suggested that the so-called new challenge could be tamed by simply enforcing current competition rules. While competition authorities, academics and practitioners still discuss the (un)likeliness of these practices, AI is being applied for a different anticompetitive purpose. Digital platforms funded by digital advertisement have designed algorithms as a tool to develop a never-ending cycle consisting of extracting data, potentially manipulating consumer choice and creating an almost perfect advertisement system controlled by AI. In other words, AI has the potential to

become a powerful tool not just for consumer exploitation but also protecting the market position of dominant market players by using nudging algorithms. The first part of this brief research will discuss why pricing algorithms are not a key issue for competition enforcement. The second and final part introduces nudging algorithms, references to the Google Shopping case are made as the anticompetitive infringement was driven by nudging algorithms.

II. Pricing algorithms: no evidence and no novelty

The hapless debate on the competition challenges brought by algorithms is confined to two aspects. Algorithmic tacit collusion and personalised prices. As will be explained below, a common element on both practices is the lack of conclusive evidence.

Ezrachi & Stucke, perhaps the main proponents of algorithmic collusion, have argued that the novelty brought by algorithms could consist of self-learning algorithms able to set prices in an autonomous way or algorithms capable of reacting and adapting prices with reference to competitor's prices.[1] This could mean, for example, prices being fixed and coordinated by algorithms but absent an agreement between competitors. However, this theory requires specific market features. Tacit collusion could arise in specific markets such as those highly concentrated and with barriers to entry, where buyers cannot exert pressure and algorithm can detect and react to price modifications.[2] Thus, algorithms could facilitate collusion in markets already prone to coordination so it does not seem to be an entirely novel challenge.[3] The algorithmic collusion theory has been extensively studied by competition enforcers and academics, however the main issues are not just the lack of empirical evidence of this practice but also an emerging consensus about its lack of novelty.[4] Commentators have argued that algorithmic collusion is not a key issue as competition rules on anticompetitive agreements and case-law on tacit coordination remain fit for purpose.[5]

In the case of personalised prices, the algorithm will set prices according to consumer's personal data.[6] For example, consumers with a previous purchasing history on alcoholic beverages could be required to pay higher prices in the future because of their interest in these products or -in a more benevolent situation- will receive personalised discounts. Price discrimination of this kind could prove to be efficient as goods and services are allocated by a market-based mechanism (i.e. prices), however the negative side of this practice will be questioned on grounds of fairness. Several reports have analysed this practice and there is little or no relevant evidence to conclude that it is a genuine threat at the moment.[7]

As can be seen, the extensive discussion on algorithmic tacit collusion and personalised pricing does not seem to be the main problem. As will be explained below, the intense focus on these two practices has allowed other issues affecting competition to remain ignored or minimised.

III. Is nudging algorithms a real issue?

Online platforms -particularly those funded by digital advertising- have a strong incentive to protect their market position. Segments such as general search engine (i.e. Google) and social media (i.e. Facebook) are controlled almost entirely by a single service provider.[8] These two platforms operate in identical ways at two different market levels. At the consumer-facing level,

they allow consumers to access the platform without charging a monetary price in exchange for their personal data. This enables the platform to develop a dataset. This dataset is used in another market segment to sell advertisement slots. The greater the amount of data extracted by the platform, the better it becomes at selling advertisement slots as this enables targeting consumers in a precise way. Therefore, it is not surprising if algorithms are developed to maintain, protect and improve this cycle. If more data are extracted then consumers receive a more personalised -and consequently- better service. It is likely that personalisation will secure consumers' engagement with the platform and provide more data. As the dataset improves then advertisement services offered by the platform becomes more accurate and more profitable.

AI, explained in very broad terms, is a non-natural process to replicate human thinking patters.[9] Thus, AI has the potential to become a very powerful tool to boost, for example, human decision-making. As irritating and embarrassing as it may seem, humans thinking process is naturally prone to failure due to cognitive limitations or emotional responses. This is relevant for two reasons. Firstly, the view of neo-classical economics on humans as super intelligent beings capable of always making right choices based on undeniable evidence is -to put it simply- part of sci-fi economics literature. Secondly, human decision-making process can be manipulated by means of choice architecture. This means that the way choices are presented influences the final outcome. These two arguments are key elements of nudge as explained by Richard Thaler and Cass Sunstein.[10] Nudge is essentially introduced as a tool to improve human decision-making. However, nudge can also have a negative connotation as it could be used to maximise profits and influence consumers to make wrong choices. Algorithms could exploit nudge in the most extreme and harmful way.

The number of competition enforcers discussing the use of nudge has increased over the last years. Most recently the UK Competition and Markets Authority and the Australian Competition & Consumer Commission have acknowledged the use of nudge in digital markets, albeit in a very limited way as they did not analyse the use of algorithms for this purpose.[11]

In 2019, the Behavioural Insights Team, a research institution based in the UK, published a report on online manipulation and online harms.[12] The report analysed the use of nudge in digital markets. There are two important elements to be considered in this regard. Firstly, the exploitation of consumer biases such as cognitive limitations or psychological weaknesses.[13] For example, the massive amount of data held by a social media such as Facebook can be used to determine if a consumer is emotionally insecure and this is a profitable opportunity for targeted advertising.[14] Secondly, the prediction of preferences.[15] As mentioned before, the way choices are presented influence decision-making. When consumers use a search engine they normally select the first available results in an almost automatic way without reviewing further. Advertisers are compelled to pay higher fees to secure the highest search results. Consumers may believe that the search engine is neutral, however search results could be influenced by advertisement.

In February 2020, a report on online targeting published by the UK's Centre for Data and Ethics and Innovation highlighted that online platforms hold massive amounts of data enabling the prediction of preferences.[16] Platforms can also use algorithms to personalise the content that will be shown to users based on their personal data. Future developments on personalisation have been described as smart content. This includes not just the way the news is presented but also tailoring interactive content available on the platform.[17] In fact, this is already happening as Netflix, an online streaming platform, personalises content based on consumers' preferences.[18]

Unsurprisingly, Netflix recommendation system has been valued at US$ 1 billion.[19]

As mentioned before, algorithms could be systematically deployed as a tool to enhance the never-ending cycle of extracting data, potentially manipulating consumer choice and create an almost perfect advertisement system controlled by AI. This is important for three reasons. First, the data provided by consumers are effectively the price they pay to access the platform without a monetary charge. Data are both a necessary input (i.e. sort of raw material to be processed and used for advertisement purposes) and a price. Algorithms are being deployed to secure the extraction of this necessary input and also preserving high non-monetary prices (i.e. extracting more data by, for example, tracking consumers online). Second, as the platform extracts more data, the algorithm is allowed to further personalise consumer's experience. Thus, the algorithm allows the platform to secure engagement and the provision of data. Third, the dataset owned by the online platform will become better and better, making it almost impossible for another market player to replicate it. The dataset is effectively a barrier precluding access into the market.[20]

Nudging algorithms are not a theoretical construction but a well-established concept backed by evidence. The Google Shopping case is an example. The European Commission (Commission) fined Google €2.42 billion for showing its own comparison-shopping website on Google's search engine platform in a more prominent way compared to similar services.[21] The Commission considered that Google was leveraging its market power on general search engine into price comparison websites.[22] This practice consisted of providing a design that will exploit inertia as the algorithm nudged consumers into using another service provided by Google, in this case from general search engine into their own comparison-shopping website.[23]

This decision has several relevant aspects but for the purpose of this brief research only two elements will be analysed below. First, Google's algorithm exploits inertia by selecting a specific design. It was established that approximately 95% of all clicks were received by the ten highest ranking search results.[24] Consumers usually review the first three of five search results. This is an expression of nudge by design as the way the options are presented influences consumer choice.[25] Second, the Commission determined that Google did not properly inform consumers about the way search results were displayed (i.e. results were favouring Google-owned services).[26] This is another expression of nudge as this strategy usually works 'in the dark'.[27] The effectiveness of nudge depends on the fact that it is hidden. Unknown to the person or group it is intended to target.

The Google Shopping case is emblematic as it provides at least two relevant themes to be explored on competition enforcement. Firstly, it could be argued that there is nothing wrong if Google designs its algorithm for its own benefit. From a commercial point of view there is no reason to believe that Google should design its algorithms to promote services provided by third parties. However, the Commission disagrees with this practice. The underlying prescriptive message from this case seems to be that algorithms should not be developed to favour the services offered by the dominant market player. The Commission seems to be enforcing competition as if regulation, this is to promote the entry of competitors into the market.[28] A second theme is the relevance of the main platform in digital markets. The provider that controls the dominant search engine (i.e. Google) and its dataset has the ability to disrupt neighbouring markets. This same situation can also be replicated in other online platforms such as social media. In sum, algorithms are a useful tool to entrench the incumbent's position in consumer-facing markets and, as a necessary

consequence, in digital advertising.

IV. Nudging algorithms or pricing algorithms?

Nudging algorithms is a real issue backed by concrete and undeniable evidence. While most of the debate on algorithms has been focused on tacit collusion and personalised pricing it is time for competition enforcers, academics and practitioners to look into nudging algorithms and its disruptive effects in digital markets. Of course, algorithms capable of enabling collusion and price personalisation should be further investigated if necessary as this is an issue that could arise in the future.

If thought carefully nudging algorithms are also pricing algorithms as they allow non-monetary prices (i.e. expressed in the amount of data provided by consumers to the platform) to remain high and perhaps to increase in the future. As Stephen Hawking said the issue with AI is not that it is malign but competent and the response from competition policy-makers should follow a similar approach, the analysis on algorithms should be competent and bold too.

The views expressed in this research are the author's own and do not necessarily reflect the views of the British Institute of International and Comparative Law.

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[1] Ariel Ezrachi, Maurice Stucke, 'Sustainable and unchallenged algorithmic collusion', University of Tennessee Legal Studies Research Paper No. 366. Oxford Legal Studies Research Paper No. 16/2019. 17 Northwestern Journal of Technology and Intellectual Property 217 (2020)

[2] Ibid.

[3] CMA working paper. Economic working paper on the use of algorithms to facilitate collusion and personalised pricing. (October, 2018) (hereinafter, CMA working paper), paragraphs 5.35-5.37

[4] CMA working paper (n 3), paragraphs 7.43-7.44. OECD Algorithms and Collusion: Competition policy in the digital era (2017) 49-50. Bundeskartellamt, Autorite de la concurrence, 'Algorithms and Competition' (November 2019) 76-77

[5] Thibault Schrepel, The Fundamental Unimportance of Algorithmic Collusion for Antitrust law, (7 February 2020) Available at: https://jolt.law.harvard.edu/digest/the-fundamental-unimportance-of-algorithmic-collusion-for-antitrust-law

[6] Unlocking Digital Competition. Report of the Digital Competition Expert Panel (March 2019), paragraphs 3.164-3.168

[7] Consumer market study on online market segmentation through personalised pricing/offers in the European Union. Final report (2018) 260-261. CMA working paper (n 4), paragraphs 7.7-7.12. OECD personalised pricing in the digital era (28 November 2018) paragraphs 29-33.

[8] Competition and Markets Authority. Online platforms and digital advertising. Final report. (1 July 2020) (hereinafter, CMA report on online platforms), paragraphs 3.145-3.152, paragraphs 3.249-3.257. Australian Competition & Consumer Commission. Digital Platforms Inquiry. Final Report. (June 2019) (ACCC report on digital platforms) 76, 84.

[9] OECD (2019), Artificial Intelligence in Society, OECD Publishing < https://www.oecd-ilibrary.org/docserver/eedfee77-en.pdf?expires=1595260759&id=id&accname=guest&checksum=8FE7C9CF88CBD92044826D77C5BF08D7>

[10] Richard Thaler, Cass Sunstein 'Nudge. Improving decisions about health, wealth and happiness' (Penguin Books, 2009)

[11] CMA report on online platforms (n 8), paragraphs 3.112, 4.198-4.206. ACCC report on digital platforms (n 8), 424-425, 589.

[12] Elisabeth Costa and David Halpern, The behavioural science of online harm and manipulation, and what to do about it. (Behavioural Insights Team, April 2019)

<https://www.bi.team/wp-content/uploads/2019/04/BIT_The-behavioural-science-of-online-harm-and-manipulation-and-what-to-do-about-it_Single.pdf>)

[13] Ibid, 13-16

[14] Ibid, 13

[15] Ibid, 21-23

[16] Review of online targeting: Final report and recommendation (Centre for Data Ethics and Innovation, February 2020) (CDEI report) 14

[17] Jarno Koponen, 'Get ready for a new era of personalized entertainment' (Tech Crunch 13 April 2020)

<https://techcrunch.com/2019/04/13/get-ready-for-a-new-era-of-personalized-entertainment/>

[18] Anthony Ha, 'Netflix is experimenting with different episode orders for 'love, death and robots'' (Tech Crunch, 19 March 2019)

<https://techcrunch.com/2019/03/19/love-death-robots-experiment/>

[19] CDEI report (n 16), 26.

[20] This applies to both consumer-facing markets (i.e. search engine or social media) and digital advertising.

[21] Case AT.39740 – Google Shopping (hereafter, Google Shopping decision).

[22] Ibid.

[23] See paragraph 352, Google Shopping decision:

‘*Comparison shopping services are prone to being demoted by the […] algorithm due to the characteristics of those services’*.

[24] Google shopping decision (n 21), paragraph 457.

[25] Robert Baldwin (2014) From regulation to behaviour change: giving nudge the third degree. The Modern Law Review, 77 (6) 831-857. (Baldwin, From regulation to behavioural change: giving nudge the third degree)

[26] Google Shopping decision (n 21), paragraph 599.

[27] Baldwin, From regulation to behavioural change: giving nudge the third degree (n 25)

[28] Christian Ahlborn and David S. Evans, The Microsoft Judgement and its implications for competition policy towards dominant firms in Europe. Antitrust Law Journal, Vol. 75, No. 3, 2009. <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1115867>

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