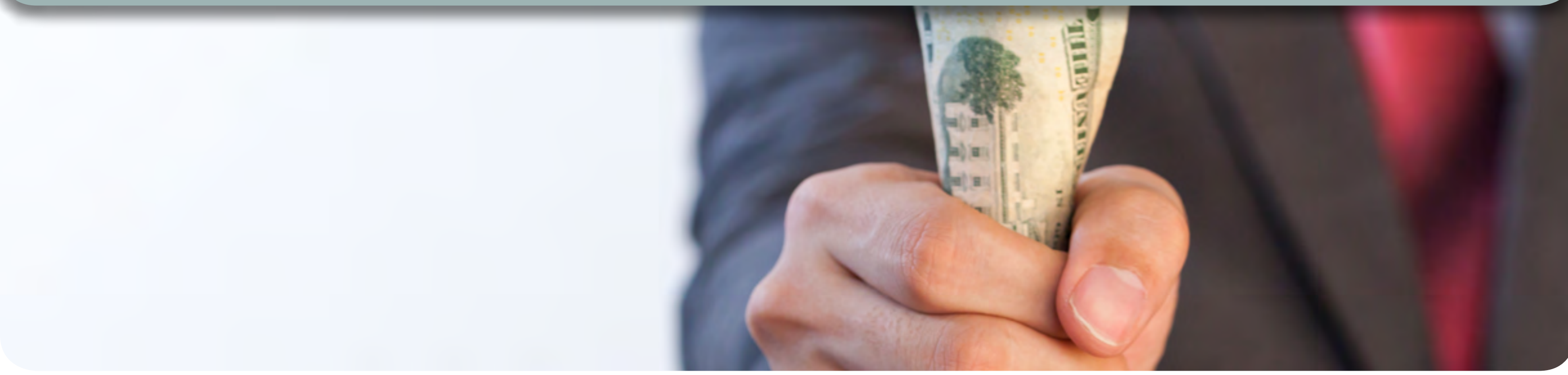
BUYER POWER IN THE BIG DATA AND ALGORITHM DRIVEN WORLD: THE UBER & LYFT EXAMPLE



BY IGNACIO HERRERA ANCHUSTEGUI [1] & JULIAN NOWAG [2]

I. INTRODUCTION

In these times of big data and algorithms,[3] well-established antitrust paradigms are continually being challenged and might need to be adjusted. The focus of the literature and case law so far has been on issues surrounding collusion[4] or access to big data in the online word.[5] However, a recent class action against Uber[6] was brought under unfair competition and privacy law rather than under the antitrust rules,[7] and centered on the use of a program called "Hell." This case provides an example of another legal arena where big data and algorithms invite us to revisit antitrust paradigms; in this case: unilateral conduct in form of overbuying and "reverse rebates."[8] In the following, we will briefly highlight the relevant facts of the case, exploring relevant behavior from a buyer power-oriented, antitrust perspective. Nonetheless, answering the question of whether the behavior actually amounts to a form of monopolization under Section 2 of the Sherman Act or an abuse under Article 102 TFEU is not the purpose of this paper. Our aim is to explore new possibilities for anticompetitive behavior created by the use of data, algorithms and programs like "Hell."

---

1 University of Bergen and Bergen Center for Competition Law and Economics (BECCLE). The research for this paper has been possible thanks to the financial support of the Antitrust Section of the American Bar Association and the Scholar in Residence Program and the AkademiaAvtalen funding program by Statoil and the University of Bergen.

2 Lund University and Oxford CCLP. We would like to thank Ida Wiig Sørensen for her comments on a previous draft. The usual disclaimer applies. The authors have contributed equally to this paper.

3 Software, algorithm, and program are used interchangeably in this paper.

4 See Ezrachi & Stucke Virtual Competition (Harvard University Press 2016) as well as OECD, "Algorithms and Collusion - Background Note by the Secretariat," (June 9, 2017) DAF/COMP(2017) 4; see also Petit, "Antitrust and Artificial Intelligence - A Research Agenda," (June 28, 2017), https://ssrn.com/abstract=2993855.

5 See e.g. Stucke & Grunes, *Big Data and Competition Policy* (OUP 2016); Sokol & Comerford, "Antitrust and Regulating Big Data," (September 4, 2016). 23 George Mason Law Review 119 (2016), https://ssrn.com/abstract=2834611; Rubinfeld & Gal, "Access Barriers to Big Data," (August 26, 2016), https://ssrn.com/abstract=2830586.

6 *Michael Gonzales v. Uber Technologies, Inc*, Case 3:17-cv-02264-JSC, U.S. District Court for the Northern District of California.

7 On the "more traditional" class action case alleging the orchestration of a hub and spoke cartel, see e.g. Nowag, "The Uber-Cartel? Uber between Labour and Competition Law," (2016) 2016 Lund Student EU Law Review Vol 3. https://ssrn.com/abstract=2826652.

8 In this paper the term reverse rebates is used to refer to compensation paid by a *buyer* to a *seller* in contrast to the usual flow from the *seller* to the *buyer*. These payments allow the seller to give the buyer preferential treatment as compared to its competitors.

The case brought before the District Court for the Northern District of California concerns the use of the program "Hell" by Uber to identify drivers who would also offer their services on the competing platform, Lyft. The program collected information on the availability of Lyft drivers in the area using false Lyft accounts. Combining this data with the data on individual drivers offering services on the Uber platform, allowed Uber to accurately identify drivers that "double-apped" over time, i.e. those who were simultaneously driving for both Uber and its competitor Lyft. Once these "double-appers" had been identified, Uber engaged in behavior aimed at ensuring that those drivers offered their services exclusively to Uber. In particular, Uber "sen[t] more riders to double-appers than to those who drove solely for Uber. [And moreover, Uber] would give them special bonuses for meeting a certain number of rides per week."[9]

Thus, the "Hell" program allowed Uber to grant targeted "reverse rebates"[10] or bonuses that could have exclusionary effects. Concomitantly, the additional rides that double-appers were offered could lead to a form of targeted overbuying which would also raise rival's costs because Uber would buy more from those drivers than it would otherwise have done under normal conditions.

II. REVERSE REBATES

The described conduct could be seen as granting special bonuses in the form of additional payments and a higher average pay per day[11] in order to induce drivers to drive exclusively for Uber. The vast amounts of data collected through "Hell" allowed Uber to precisely target these reverse rebates to particular drivers. By means of these bonuses Uber secures its input, a driver available for hire, to its own platform. This use of upstream-reverse rebates or "supra-competitive bonuses" with an exclusivity effect are an interesting contrast to the more frequently discussed downstream rebates from seller to buyer.[12] These reverse rebates over the purchasing of drivers' services might have effects on both the upstream and downstream markets in the form of exclusionary buyer power exertion.[13]

There are several examples from both the U.S. and the EU of abuse of buyer power. The common feature of these cases is the attempt to increase rivals' costs to exclude the rivals from either the upstream or the downstream relevant markets. The use of big data, however, provides a novel development regarding buyer power exclusion worthy of analysis. By engaging in this exclusionary behavior, a powerful buyer can increase its rivals' costs in a much more targeted way, dramatically reducing costs for the acquirer of the input when compared to traditional modalities of the same conduct. In the case of Uber and Lyft, for example, the use of big data meant that the rebates were only offered to double-appers rather than to all drivers in general, as further discussed below.

In the EU, for example, *British Airways v. Commission*,[14] concerned upstream rebates: exclusionary buyer power was used by means of bonuses which were paid to travel agents to incentivize them to sell more BA tickets. The conduct had an exclusivity enhancing effect as it made access to end consumers via the travel agents[15] more difficult for BA's competitors. Hence, buyer power in the input market affected the downstream market in a form of leveraging of market power.

9 As reported by endgaget.com, see Moon "Uber's 'Hell' program tracked and targeted Lyft drivers," (April 13, 2017), https://www.engadget.com/2017/04/13/uber-hell-program-lyft-drivers.

10 In this paper we use the term reverse rebates to refer to a form of compensation paid by a buyer to a seller to incentivize the latter to provide to the buyer more or better goods and/or services than to a competitor.

11 The higher average pay results from the increased number of rides. A driver has high fixed costs for the car and there are sometimes also long idle times. The increased number of rides that double-appers would receive meant that the idle time decreased while the utilization rate of the car increased thus leading to higher profits.

12 For some recent cases dealing with rebates granted by sellers to buyers in the downstream market see, inter alia: Case C-23/14 *Post Danmark* EU:C:2015:651; Case T-286/09 *Intel v. Commission* EU:T:2014:547; Opinion of Advocate General Wahl in Case C-413/14 P *Intel Corporation v. Commission* EU:C:2016:788; Case T-203/01 *Michelin v. Commission*, EU:T:2003:250.

13 On reverse rebates and buyer power, see Herrera Anchustegui, *Buyer Power in EU Competition Law* (University of Bergen 2017). A summary available at: https://www.academia.edu/32246988/Buyer_Power_in_EU_Competition_Law?auto=download&campaign=weekly_digest.

14 Case T-219/99 *British Airways v. Commission* EU:T:2003:343; and Case C-95/04 P *British Airways v. Commission* EU:C:2007:166.

15 Back in those days the main option to sell tickets to the end consumers.

This theory of harm has some similarities with the Uber "Hell" law suit. Uber's "Hell" program helped to identify drivers that also drove for the competition. Uber would then grant more rides and/or grant fidelity bonuses to these double-appers if they reached a certain minimum number of rides per month. This meant an increase in those drivers' overall-profit per time period. This behavior is liable to increase the rival's costs, i.e. that is to say Lyft's. The conduct encourages drivers to provide more rides on the Uber platform, simultaneously reducing the time they are able to provide their services on the Lyft platform. Further, it would make sense for Uber to obtain as many drivers as possible for rides from Lyft. This would reduce Lyft's ability to offer rides, unless Lyft also increased payment to its drivers, either through higher bonuses or by reducing the fees charged to drivers. Uber's behavior would therefore also raise its rival's costs in the upstream input market. However, it needs to be noted that this rise would be substantial as long as Lyft does not employ a similar program to identify double-appers. If that were the case, Lyft would have to offer higher pay to all its drivers. So, while the "Hell" program allows Uber to target only the marginal drivers, Lyft cannot compete unless it makes use of similar data and algorithmic schemes to identify double-appers.

Two points should be considered when assessing exclusionary effects of such conduct. First, waiting time is an essential feature of the quality of ride hailing platforms. Any restrictions, therefore, on the number of drivers available on the platform at any given time, may lead to longer waiting times and a significant reduction in the quality of the platform. Second, it is likely[16] that double-appers were not informed by Uber that they received additional bonuses and frequent rides because they also used to drive for Lyft. One might, therefore, argue that normal market forces were put out of play and that the algorithm allowed Uber to increase rivals costs in an extremely efficient way by reducing costs incurred by the bonus program and additional rides.[17]

III. OVERBUYING

Exclusionary buyer power can also be exerted through overbuying, which may have an upstream or downstream market focus. In both cases the buyer either acquires more goods then objectively needed or pays more than the market value for the goods, with the aim of excluding a competitor.[18] In buyer power cases[19] a "dualistic approach" should be employed[20] so that buyer power implications upstream as well as in the related downstream market are assessed. Such an approach is particularly appropriate for platforms because it reflects its two-sided nature.[21] Such platforms exist where an "economic catalyst" is used to connect two groups of customers who depend not only on each other, but also on the platform, in order to capture the value of their transaction.[22]

The leading case in this this regard is the U.S. Supreme Court's *Weyerhaeuser*.[23] It concerned the overbuying of tree logs with the aim of raising rival's cost in the upstream input market. The U.S. Supreme Court used the traditional predatory

16 The information available seem rather not incomplete in this regard. Yet, it would be illogical to inform drivers because this would incentivize them to continue as double-appers and might induce other drivers to also start double-apping to obtain these benefits.

17 Whether this would be efficiency enhancing or reducing overall is a very interesting empirical question.

18 Salop, "Anticompetitive Overbuying by Power Buyers," (2004-2005), 72 Antitrust Law Journal 669; Kirkwood, "Buyer Power and Exclusionary Conduct: Should Brooke Group Set the Standards for Buyer-Induced Price Discrimination and Predatory Bidding?," (2004-2005), 72 Antitrust Law Journal 625.

19 Both with regard to exploitation and exclusion.

20 HerreraAnchustegui, supra note 13; Herrera Anchustegui, Market Definition in Buyer Power Cases: Revisiting Some Traditional Views (2015), available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2600471. This dualistic approach is not exclusive to buyer power cases. In fact, the Commission adopted it for the evaluation of concentrations. It shall take into account the structure of all markets concerned and the position of the undertakings involved, the rivals, and end consumers when determining the operation's effects, see Council Regulation (EC) No 139/2004 of 20 January 2004 on the control of concentrations between undertakings (the EC Merger Regulation) [2004] OJ L 24/1, Article 2.1(a) and (b).

21 On the challenges of multisided markets for competition law, see Gürkaynak, İnanılır, Diniz & Yaşar, "Multisided markets and the challenge of incorporating multisided considerations into competition law analysis," (2017) 5 Journal of Antitrust Enforcement 100.

22 See Evans & Schmalensee, "The Industrial Organization of Market with Two-Sided Platforms," in The Oxford Handbook of International Antitrust Economics, Volume 1 Edited by Blair & Sokol (OUP 2015). For an overview on other definitions see Gürkaynak, İnanılır, Diniz, and Yaşar (n 32), 100-105. Crucially in this context are network effects and economies of scale, as one side influences the other, see the foundational paper, Rochet & Tirole, "Platform Competition in Two-Sided Markets," (2003), 1 Journal of the European Economic Association 990.

23 *Weyerhaeuser Company v. Ross-Simmons Hardwood Lumber Company, Inc.*, 127 S. Ct. 1069 (2007).

pricing test,[24] as overbuying was seen as the mirror image of predatory pricing, where a short-term loss is incurred to exclude rivals. The U.S. Supreme Court highlighted that predatory buying schemes are rarely effective, and that where the exclusionary conduct fails, end consumers benefit from a surplus in downstream available goods and, thus, likely lower retail prices. The U.S. Supreme Court, therefore, established that for an overbuying claim to be successful the plaintiff must provide evidence not only of the upstream overbuying, but equally of predation at the retail level.

If the aim is overbuying for the purposes of upstream exclusion, Uber's "Hell" operation breaks with the "traditional" approach: The naked overbuying (hoarding) of driver services does not seem to make economic sense because these services are only available within a specific timeframe and cannot be stored for later use. Similarly, the case does not appear as an attempt to exercise exploitative buyer (monopsony) power over drivers.

Yet it might lead to exclusion from the input market, the market for drivers. In this case, the input market could be foreclosed by the overbuying mechanism of "Hell," particularly when drivers would not have Uber's competitors to offer their services to.[25] Thus, due to Uber being the sole outlet of the driver's services, it could lower the price paid to drivers for their service,[26] possibly reducing the amount of available drivers in the downstream market. This monopsony theory, however, would fail to explain how Uber would restrict its purchases when its demand for drivers is dictated by consumers' demands for rides.[27]

Alternatively and more likely, Uber would target either upstream markets by charging drivers a higher fee for its connection service, or downstream markets by increasing fares. An (at least partly) successful exclusion of Lyft from the market for drivers could create downstream effects and imply higher end consumer prices, if it is caused due to withholding and/or exercising monopoly power downstream, since there would be less (or no) competition in the retail market. This effect would be further reinforced if normal taxis could not provide competitive pressure because their fares are set at a higher price, leaving them unable to compete. Moreover, even without restricting purchases, but simply exerting anticompetitive bargaining power, dominant buyers that are also dominant sellers can exert market power to the detriment of both suppliers and consumers, particularly in the long run.[28] More generally, a program like "Hell" reduces Uber's costs for any form of predation[29] because it makes it more targeted. In fact, it might even allow a form of targeted shifting of the demand so that only inputs critical for the rival are acquired. It is also possible that this happens without, or with only very limited, overbuying as such.[30] While traditional predation is expensive because it involves lowering prices indiscriminately, this form of big data driven predation allows for targeted price discrimination[31] within predatory pricing and targeted strategies only applicable to the marginal group of double-appers.[32] Thus, "Hell," and big data in general, may make predation cheaper, more precise, and more effective. If this is the case, one could imagine that predation is more likely to be successful. As the costs are smaller, the timeframe for recovering such costs via supra-competitive prices is also smaller. Similarly, the cost benefit analysis between the predation costs and the gains from a reputation for predation might raise further barriers of entry.

24 The so called Brooke Group test, see *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209 (1993).

25 Unless entry takes place.

26 E.g. by increasing the fee it charges on the ride.

27 However, it might be possible that Uber could increase the fees it charges to the driver to the equilibrium levels. Thus, the level where the reduction in rides offered on the platform is offset by the increase in fees charged to the driver. The likelihood of reaching such an equilibrium is more likely with the usage of big data driven algorithms.

28 For a discussion of buyer power competitive risks depending on the market power as a buyer and seller see: Chen, "Buyer power: Economic theory and antitrust policy," (2007), 17 Research in Law and Economics, 22.

29 In predation cases, questions of deep pockets are typically asked with regard to the possibility to recover the costs of predation, see for example: Hylton, *Weyerhaeuser, Predatory Bidding, and Error Costs*, (2008) 1; Salop, supra note 18; Kirkwood, supra note 18; Zerbe Jr, "Monopsony and The Ross-Simmons Case: A Comment on Salop and Kirkwood," 72 Antitrust Law Journal (2004-2005) 717.

30 That is to say, cases where the overall input is not changed but where the demand is simply shifted to the input critical to the rival.

31 With regard to price discrimination towards consumers see e.g. Ezrachi & Stucke, *Virtual Competition*, (Harvard University Press 2016) p. 83ff.

32 And not to e.g. Uber-exclusive drivers.

Turning now to overbuying and its possible effects on the downstream market, the use of "Hell" and the associated conduct might also be seen as an attempt at raising a rival's costs through overbuying.[33] The targeted increase in pay for double-appers could equally affect the downstream market and increase Uber's market power by raising rivals' costs, and making them less competitive, possibly leading to their market foreclosure.

The targeting of the double-appers means that Lyft would need to match or surpass the price[34] that Uber pays these drivers, which in turn increases Lyft's costs regarding these specific double-appers. In this regard, it is important to note that as long as Lyft does not use a similar algorithm driven approach[35] to identify double-appers, the costs for Lyft would be even greater as it would have to offer the increase across the board and not only to those marginal drivers. This increase in costs is likely to raise Lyft's prices *vis-à-vis* end consumers, reducing competitiveness, while allowing Uber to either equally increase price while staying competitive or substantially increasing its market share.

IV. CONCLUSION AND FOOD FOR THOUGHT

In this short paper we have examined the possible antitrust implications of the use of software like "Hell" on competition from a buyer's perspective, while not engaging in a concrete analysis of Uber's conduct. This analysis provided us with the opportunity to re-explore traditional antitrust concepts, anchored on the purchasing of raw material, in the data and algorithm driven world. In particular, the paper explored how companies can use big data in anticompetitive strategies, such as granting supra-competitive bonuses, overbuying, and raising rival's costs through overbuying with regard to input.

However, we ought to remark on the fact that aggressive bidding for an input is price competition as well. Buyers that value a good more than others are inclined to pay more for it. From this fight-for-input-perspective, if Uber pays more to double-appers, it may be because this higher price is the real input's market price. This could happen in new and highly dynamic markets where there are no traditional references for the "value" of the input; i.e. the drivers' services. Alternatively, the overpaying could be due to error, or simply due to the fact that Uber puts a higher value on the services of these drivers – conduct which is not necessarily anticompetitive, and the reason why successful overbuying cases are rare and difficult to prove. Also, it is possible that Uber pays more for its input while reducing its profit margins and preserving, or even lowering, the price it offers to end consumers as a sign of efficiency. This would benefit drivers as they are paid a higher service fee, and would have either neutral or positive effects on end consumers, as output is increased and prices remain constant or even decrease.

Yet, in this paper we focused on the anticompetitive ways in which big data and algorithms like 'Hell' might be used. We have explained how a program like "Hell" could be employed by Uber to grant higher bonuses to double-appers, ensuring that these drivers drove for Uber and not Lyft and, limiting Lyft's ability to offer services to end consumers. With regard to overbuying, Uber could have acquired more services from drivers than objectively needed in order to prevent Lyft from acquiring this input, or at least increase Lyft's costs, and aiming at distorting upstream conditions. Concerning the theory of harm of raising rivals' costs by overbuying, the targeted use of buyer power could also increase Lyft's costs and, force Lyft to charge higher prices downstream to end consumers which would in turn either force Lyft to exit the market or would allow Uber to raise prices downstream.

What is novel and important in this case, is that the use of big data and programs such as "Hell" have the potential to make exclusionary buying tactics far more efficient. The program shows how big data and surveillance can be used in new and ingenious ways in a competitive setting, allowing for targeted conduct such as overbuying. This allows undertakings to

33 Hviid & Olczak, "Raising Rivals' Fixed Costs," 23 International Journal of the Economics of Business (2016), 19. For general literature on raising rival's costs see: Krattenmaker & Salop, "Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power over Price," 96 The Yale Law Journal (1986), 209; Scheelings & Wright, "Sui Generis: An Antitrust Analysis of Buyer Power in the United States and European Union," 39 Akron Law Review (2006), 207, p. 215. Also generally, see Scheffman & Higgins, "Raising Rivals' Costs," in Blair & Sokol (eds), *The Oxford Handbook of International Antitrust Economics*, vol 2 (Oxford University Press 2015).

34 By means of bonuses and more rides.

35 One should bear in mind that in this case the class action suit alleges that the approach breached unfair competition and privacy rules, because Uber used fake Lyft profiles to get access to its competitor's platform to see which drivers were available.

move away from "traditional" tactics – purchasing of all or most of the input in a given market – and instead target market players with new levels of precision. This conduct can take the form of targeted rebate schemes, targeted overbuying, or more generally a strategic and targeted raising of rivals' costs. Big data and surveillance allows such conduct to be implemented more efficiently, that is to say cheaply. We end our contribution with a call for further empirical research into whether this improved efficiency is overall welfare enhancing or rather problematic for the markets' competitiveness.