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Practical competition policy implications of digital platforms

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ABSTRACT

The traditional tools of competition policy are difficult to interpret in the context of multi-sided digital platforms. The size and apparent market power of some platforms means competition authorities are facing calls for tougher action. However, both regulatory intervention and anti-trust enforcement will remain controversial until economic analysis provides some tools for a systematic assessment of competition in these markets. A particular analytical and empirical challenge is incorporating the dynamic as well as static effects of platforms' dominance, given the evidently large consumer benefits they provide, and the fact that the growth of digital platforms rests on innovation and competition for the market. A practical way forward for competition authorities is suggested, rooted in a consumer welfare standard, but focused on innovation rather than static competition.

Introduction

Concern about the size and market power of some large digital platforms has been on the increase, widely reflected in the media (see for example Farahoor 2017, Gapper 2017, The Economist 2016). The growing concern is also manifesting itself in official anti-trust actions such as the European Commission's recent €2.42 billion fine imposed on Google for abusing its dominance in 'demoting rival comparison shopping services in its search results' to advantage its own service; and in policy proposals and investigations such as the European Commission's ongoing Digital Single Market program or the wide-ranging Australian Competition and Consumer Commission inquiry into the market power of digital platforms.¹

However, it will prove difficult to address these concerns until there is greater consensus in the academic and practitioner literature as to how to analyse market power and the competitive process in the case of digital platforms. There is a rapidly expanding theoretical literature on these models, but not yet a consistent analytical framework, and scant empirical evidence about the market and consumer welfare effects of the platforms (see for example surveys by Coyle, 2016; Auer and Petit, 2015). As the earliest work in this literature dates back only to about 2003, it might be considered too early to expect the research to have translated into agreed, practical competition policy tools. Unfortunately, the need on the part of antitrust authorities is urgent. For, certainly since the arrival and rapid spread of smartphones after 2007, and subsequent business model and algorithmic innovations, the proliferation of digital platforms and growth of some of them has been striking. The need for some practical approaches is imperative. While further rigorous theoretical and empirical research is certainly needed, this paper offers some immediate practical proposals. It focuses on three areas to consider in any competition assessment of digital markets:

- What are the incentives to invest and innovate in any specific case, given that competitive dynamic in these markets (as other technology markets) takes the form of disruptive innovation? And, as major innovation is often due to new entrants rather than incumbents, have the incumbents erected barriers to entry at minimum commercially viable scale?
- What dynamic consumer disbenefits offset the undoubted static consumer benefits in digital platform markets, and what is the scale of each?
- What is the impact on competition in adjacent and upstream markets of entry or acquisition by a large incumbent digital platform? In particular, what are the effects on the incentives to invest and innovate across the ecosystem?

Even in the absence of standardised techniques comparable to familiar existing procedures such as the SSNIP test or market definition exercises, answers to these sets

¹ http://europa.eu/rapid/press-release_IP-17-1784_en.htm; <https://ec.europa.eu/digital-single-market/en/online-platforms-digital-single-market>; <https://www.accc.gov.au/about-us/inquiries/digital-platforms-inquiry>

of questions will give some practical guidance, firmly rooted in the analysis of consumer welfare, yet going beyond the conventional focus on firms' pricing behaviour.

Platform economics and traditional competition assessment

An immediate difficulty in antitrust analysis is the lack of a clear, broadly agreed definition of a multi-sided platform (MSP). Although there is agreement about some of their core economic characteristics, the economics literature contains several variants, of different degrees of precision (Rochet & Tirole 2003, 2006; Evans & Schmalensee 2014, Armstrong, 2006). MSPs are agreed to have at least two 'sides', users and providers, or buyers and sellers. There are indirect network externalities such that participants on each side benefit, the more numerous are the participants on the other side. For example, travellers benefit from more hotels being on the platform, and hotels from there being more potential travellers, on an online travel agency platform. The platform opportunity exists when the different sides cannot transact separately to capture the value of the indirect network externalities themselves (Evans and Schmalensee, 2013, p7). While platforms in this sense have existed for a long time (bazaars, stock exchanges, operating systems), the new digital platforms have greatly extended the scope of possible transactions thanks to matching algorithms and the technologies of broadband and smartphones or other devices (Coyle 2016).

More formally, "A market is two-sided if the platform can affect the volume of transactions by charging more to one side of the market and reducing the price paid by the other in equal amount; in other words, the price structure matters, and platforms must design it so as to bring both sides on board," (Rochet and Tirole, 2006, p664). However, this is not an operational definition so much as a *post hoc* description; and the subsequent and rapidly growing literature on MSPs refers to them, variously, as businesses, markets, or networks, as well as platforms. This is not surprising, perhaps, as they blur the boundary between production and exchange, having features of both businesses and marketplaces. They use various types of coordinating mechanism (such as matching algorithms, technical standards, or information capture and classification) in place of the traditional co-ordination via time and place. Some organizations operate both as one and two sided businesses (for instance, Amazon as a retailer and Amazon Marketplace as a platform) (Coyle 2016). Many digital organizations are loosely considered as platforms, while some non-digital-era businesses are also considered with hindsight to be platforms. Auer and Petit (2015) note that the scholarly literature has failed to converge on a definition because of a lack of conceptual clarity about which businesses merit classification as MSPs, resulting in disagreements in the literature, and some businesses that could surely be defined as conventional vertically-integrated organisations being regarded as platforms. Indeed, to a large extent, operating as a platform is a business model choice; for instance, selecting advertising funding rather than a subscription model. Auer and Petit propose the importance of the Coaseian opportunity, rather than network effects alone, as a defining feature: platforms reduce transactions costs by enough to enable transactions that would otherwise not occur, internalizing the externality.

If either new ex ante regulations or competition policy analytical tools are to be applied to digital platforms, then a clearer operational definition will be necessary. Meanwhile, however, there is clearly growing concern about the scale and perceived power of some large digital platforms. This includes the group often referred to collectively as GAFAM (Google, Amazon, Facebook, Apple, Microsoft), but to some extent also other large or fast-growing businesses in different sectors, such as Uber, Airbnb, Booking.com and Deliveroo. These businesses are involved in a wide range of different activities, only some parts of which can be characterized as MSPs.

From the perspective of competition authorities, such platforms pose several challenges, including the extent to which sheer size should be a concern. However, one specific challenge is precisely that price on each side of the market will not be reflective of marginal cost on that side, as the price structure and level will be set separately. This makes traditional SSNIP tests non-operational as the prices set by the platform on each of its 'sides' cannot be considered in isolation.

The standard market definition exercise is equally inapplicable because of the feedback links between the two (or more) sides. As a result of these links, one form competition between platforms takes is 'envelopment', or in other words adding another group of customers on one side and using those revenues to reduce the price charged to another side of the platform (Eisenmann et al, 2010). Platforms therefore often adopt this strategy once they have a large user group 'on board'. For instance, Uber has moved into food delivery with Uber Eats, while Google has moved beyond its original search business to add a wide range of others (not all platform-type models). Platforms may also adopt the bundling or tying of services in order to cross-subsidise between different groups of users when they are unable to set a negative price to subsidize one side directly (Amelio & Jullien, 2012). Envelopment or bundling strategies may build barriers to entry in the 'enveloped' markets. For it will become harder for smaller platforms, without so many groups on board, to match the prices or services of the bigger incumbent able to take advantage of cross-subsidies.

What's more, with any matching platform, while price is clearly relevant to the welfare assessment, the products or services will be highly differentiated; variety and better matching of supply and demand features is part of the economic welfare they create. Anti-trust enforcement has for a considerable time applied a consumer welfare standard, often attributed to the influence of Robert Bork's book *The Anti-Trust Paradox* (1978) and subsequent Chicago School work (Shapiro 2017, Khan 2017). In practice, prices have been taken as the indicator of consumer welfare, but in any technology market, product characteristics will be at least as important (Pleatsikas and Teece 2001). Clearly when the consumer-side price is zero, as on many platforms, *all* the direct competitive pressure is exerted through service quality and innovative features. Although competition guidelines often pay lip service to quality and other characteristics as features of competition, in practice there is a focus on price as it is definitionally crisp and easier to measure; for example, the UK's Competition and Markets Authority Merger Assessment Guidelines state that competition "Creates incentives for firms to cut price,

increase output, improve quality, enhance efficiency, or introduce new and better products,” but subsequent amplification refers almost entirely to prices.²

Third, the phenomenon of ‘multihoming’ may have counterintuitive implications. On the consumer side, multihoming, where the typical consumer signs up to several platforms, is a reasonable sign of competitive pressure. If the platform delivers an inferior service or price, it is likely to lose consumers on that side of its business. On the supplier side, however, strong competition could lead suppliers to avoid multihoming, for if close rivals select different platforms, they may dilute the competitive pressures they face, to the extent that buyers on the other side do not monitor all platforms. In this case there would be multiple similar platforms charging high fees. If there is less competitive pressure among suppliers, the network effects will lead them to join a dominant platform, and platforms will be competing for the market but charging low fees to users on this side. The correlation between price and concentration (in terms of the platform) is exactly the opposite to what intuition would suggest (Karle et al 2017).

Finally, platforms face what the literature refers to as the ‘chicken and egg’ problem, or in other words the need to expand both sides in an appropriate balance (Evans 2011). The indirect network effects attracting users on each side to the platform mean that the platform has to be sure to have enough of each, and until it reaches critical mass this is likely to be loss-making. However, once it does reach the critical point, a platform can quickly grow to a large scale, thanks to the power of the indirect network effects. The typical dynamics make it hard to interpret profitability in terms of competition and market dynamics. Many platforms fail without ever having made a profit (Evans 2011). When they reach profitability, investors will have a reasonable expectation of a return commensurate with the risk. Indeed some digital businesses – Amazon for instance – report negative to low profits for long periods. This is sometimes seen as a cause for concern, as the motivation is taken to be the desire to grow to a dominant position in one or more markets (Khan 2017). This too is an inversion of the normal intuition, which would see low profits as a reason to be relaxed about competition, not the opposite.

Many of these new challenges reflect a more acute version of a longstanding dilemma in competition assessments, namely how to weigh static against dynamic efficiency. The emphasis in practice to date has been on static efficiency. To a large extent, this is due to the legal framework. For example, in Articles 101 and 102 of the Treaty on the Functioning of the European Union³ the descriptions of proscribed behavior are given in terms of static efficiency gains. They do not, “Deal with welfare reducing strategies associated with dynamic competition, such as pre-emptive patenting, excessive advertising, innovative rent seeking, excessive product differentiation, and weakening of the capability of resource constrained competitors.” (Audretsch et al, 2001, p627) The scholarly literature, however, has increasingly emphasized the dynamic, Schumpeterian benefits of competition (Teece & Coleman 1998), concurring with Judge Learned Hand in the Alcoa decision (1945) “Immunity from competition is a narcotic, and rivalry a

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https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/284449/OFT1254.pdf

³ <http://ec.europa.eu/competition/antitrust/legislation/articles.html>

stimulant to industrial progress.”⁴ This is particularly the case with technology businesses: “It is not just immediate entry that tempers behavior in high technology industries; it is also the threat of the next generation of products and services that is of concern to incumbents. Current leaders must succeed in each round of innovation or lose leadership.” (Pleatsikas & Teece, 2001).

The economics literature does not give a clear verdict on the incentives to innovate, either by the platform itself, or by the suppliers using the platform. Bellflamme and Toulemonde (2016) suggest that direct profit incentives (innovation to reduce costs) and indirect strategic incentives (due to competition) for innovation can work against each other in rather complex ways. If a cost-reducing innovation would trigger an increase in competition on the subsidized side of the platform, this can reduce the platform’s own incentive to innovate. Therefore platforms will tend to concentrate their innovation on different sides so as to limit these cross-group competitive effects. Platforms recovering their costs from suppliers in order to keep consumers on board may reduce the suppliers’ capacity to innovate. Platforms that become dominant may have a reduced incentive to innovate themselves (Gawer and Cusumano, 2014).

Digital MSPs do co-ordinate exchanges that could not otherwise have occurred, such as better and faster matching of supply and demand, increased variety and discovery benefits (especially with experience goods like music and books), and more intensive usage of idle assets (cars, accommodation). These benefits imply that, even if platforms grow to a large scale and appear dominant with some potentially adverse dynamic efficiency consequences, there is significant economic welfare to be weighed against any potential abuse (Coyle, 2018). Indeed, the larger the platform, the larger these economic welfare gains are likely to be. Until recently, economists have not tried to quantify the static welfare gains, although this is changing with new methodologies to estimate the scale of the consumer surplus (Brynjolfsson et al 2017).

Yet there is no settled approach either in the economic literature or competition practice to weighing static efficiency against the potentially much larger dynamic efficiency gains or losses. “Although we know that innovation is critical to economic growth, the theoretical literature relating to competition and innovation remains insufficient to instill any great confidence in our ability to determine what antitrust policies will encourage innovation and result in net consumer welfare gains.” (Manne and Wright, 2010, p166).

Contrasting approaches to digital platform markets

It is not surprising, then, that there are strongly contrasting views about the approach competition authorities should take toward MSPs. Some digital platforms are so large, and so dominant in some key markets, that they are facing successive anti-trust proceedings from some authorities (notably the European Commission). The concentration observed in some digital markets is seen as representative of weak anti-

⁴ *United States v. Alcoa*, 148 F.2d 416 (1945) <https://law.justia.com/cases/federal/appellate-courts/F2/148/416/1503668/>

trust policy, argued by some to be contributing to the surprisingly poor productivity performance in major economies including the United States (Council of Economic Advisers 2016, Kwoka 2017). Others argue that the evidence for increasing concentration harming competition and productivity economy-wide is unconvincing (Shapiro 2017).

In either case, there is clearly significant unease about the scale and market position of the biggest digital platforms (Moore and Tambini, 2018). One line of argument challenges the focus in competition law and practice on consumer welfare as the criterion for assessment. Khan (2017) argues that the concern to avoid the damage caused by ‘false positives’ (as set out for instance by Manne and Wright, 2010, Posner 1975) has led anti-trust authorities to over-emphasise the static market outcomes and welfare benefits: “[P]egging anticompetitive harm to high prices and/or lower output—while disregarding the market structure and competitive process that give rise to this market power—restricts intervention to the moment when a company has already acquired sufficient dominance to distort competition,” (p378). Her argument is that the path-dependent character of the large digital platforms (her example is Amazon), once they have reached the ‘chicken and egg’ tipping point and acquired large groups of users, has increased the welfare cost of ‘false negatives’ or incorrectly failing to diagnose the absence of effective competition. The presumption in this approach is that the Chicago School consumer welfare standard, in the form of emphasis on price, assessed retrospectively by anti-trust authorities, in reality serves welfare less well than the older institutional tradition that considered the specifics of market structure and the competitive process. The argument is that the speed at which digital platforms evolve, their business dynamics, and their strategies of vertical integration and ‘envelopment’, render inadequate ex post competition assessments on the basis of a static efficiency perspective.

A distinct concern is the ability of the digital platforms to benefit from price discrimination of increasing granularity and scope, thanks to ever more sophisticated tracking of consumers and algorithmic price-setting. Ezechia and Stucke (2016) have predicted, dramatically, “[T]he end of competition as we know it.” Just as in many markets, large digital players are able to price discriminate, but typically consumers at least understand that such price discrimination occurs – for example, in purchasing airline tickets of different classes at different times or in buying hardbacks rather than paperbacks at a later date. The extent of algorithmic price discrimination is unknown but thought to be growing through personalisation, tracking and big data techniques. The literature on this is becoming quite extensive, without providing any firm empirical evidence. For example, after a roundtable discussing ‘algorithmic collusion’, the OECD concluded there was a need to ask whether there is a need to ‘regulate algorithms’ as, “A widespread use of algorithms has also raised concerns of possible anti-competitive behaviour as they can make it easier for firms to achieve and sustain collusion without any formal agreement or human interaction. This paper focuses on the question of whether algorithms can make tacit collusion easier not only in oligopolistic markets, but also in markets which do not manifest the structural features that are usually associated with the risk of collusion,” (OECD 2017). There is additionally concern about the scope for anti-competitive behaviour in areas that are hard to monitor (and may also give rise to serious non-competition policy concerns) such as the harvesting of personal data and its use to manipulate consumer choice. The use of data may enable

algorithmic price discrimination by providing better estimates of each individual's reservation price (Ezrachi and Stucke, 2016, p98-100).

Finally, specifics of the behaviour of certain platforms may give rise to concerns. For example, Uber has been fined or subject to regulatory restrictions or bans in many cities, due to its breaches of local regulation (refs). Hotel booking platforms are the subject of a new Competition and Markets Authority probe in the United Kingdom due to their use of pressure selling techniques and hidden charges.⁵ These behaviours are not limited to digital platforms by any means, but the size and scope may be large, as may the asymmetries of information between platform and consumer, and platform and regulators.

However, some economists strongly dispute concerns about market dominance by certain platforms, arguing that they ignore important features of digital platform competition. These approaches suggest that the economic characteristics of platforms mean the markets in which they operate are more competitive than they appear, and competition for the market – in the form of potential technological disruption – is an ever-present threat.

One counterargument is that such markets are likely to be *more* competitive than standard tools of assessment such as SSNIP tests and market definition, or concentration indices and market share, might suggest. A high price on one side of the platform does not necessarily indicate any lack of competition because of the relevance of the price structure rather than the level on either side, because of the need to recover initial losses in a positive margin later, because of product quality and differentiation, or all of these. Some economists have argued that many practices that might be seen as anti-competitive in other contexts (predatory pricing or non-price agreements such as tying or exclusive dealing) are adopted by small and fiercely competitive platforms (Parker and Van Alstyne 2005).

Another argument often made is that there is intense rivalry in many areas of their business even in the case of the biggest digital platforms (Petit 2016, Evans 2017). For instance, although Google is dominant in search (outside China), it faces strong competition in AI, cloud services, and mobile operating systems. In addition, new large platforms and businesses can challenge these giant incumbents in some areas of business (such as autonomous vehicles, for example).

However, looking at this competition market by market makes it clear that sometimes there is intense oligopolistic rivalry with one or at most two of the rest of the GAFAM group. The table below, extracted from Evans 2017, illustrates this across the rows; the bold entries are the dominant players, typically just one or two in each category. Although others among the group of rivals may have some activity in these areas, they lag far behind in terms of market share. In some of these areas of activity, competition authorities have permitted the large platforms to acquire small but rapidly growing businesses, enabling them to consolidate their leading market position – for example, in voice activated digital assistant software or robotics. Yet it as noted above, there is

⁵ <https://www.gov.uk/government/news/cma-launches-consumer-law-investigation-into-hotel-booking-sites>

an unresolved debate about the extent to which oligopolistic rivalry in a series of technology markets, where innovation is an important aspect of competition, is a desirable outcome in economic welfare terms.

	Google	Facebook	Apple	Microsoft	Amazon
Search	Google			Bing	Own product search
Mail	Gmail		iCloud mail	Outlook	
Messaging	Hangouts	Messenger WhatsApp	iMessage	MSN Messenger, Yammer	
Maps	Google Maps, Google Earth, Waze		Apple Maps	Bing Maps, StreetSide	
Social networking	Google+	Facebook, Instagram		LinkedIn	Twitch/ Goodreads
Cloud	Drive, Google Cloud Platform		iCloud	Azure, OneDrive, SkyDrive	AWS, Amazon Drive
Autonomous vehicles	Waymo, Android Auto		AppleCar (software)	Software investment	
Voice activated assistants	Google Home	Messenger Bots	Siri	Cortana, others	Echo/Alexa
Advertising	AdWords, AdSense, DoubleClick, Tag Manager	In News Feed Audience Network		Bing Ads	Amazon Advertising

Other arguments in defence of the competition facing large platforms include the fact that the entry barriers to their markets are on the whole low in terms of physical investment requirements and the ease of innovating through software and use of the open internet (Varian et al, 2001); and most platform markets are characterized by multi-homing (the use of more than one platform by participants on one or several sides) and users can easily switch (Evans, 2017).

But perhaps the most important argument is that the nature of the competitive process is competition *for* the market, rather than in the market, such that a dominant platform can easily be overturned by an entrant or rival with better technology, higher quality, or a different business model. One well-known example is the overthrow of MySpace by Facebook as the dominant social media platform (Gilette, 2011). It is possible in fact to point to a succession of such shifts in different areas of technology: Microsoft's Internet

Explorer is no longer the dominant web browser; MS-DOS is not a dominant operating system; Apple's iPhone handset and IOS mobile operating system sprang out of its own innovative activity, carving out substantial market shares from incumbents like Blackberry and Nokia. As many economists have argued, the Schumpeterian process of innovation is precisely how competition occurs, particularly in technology markets. "In the world of high technology, there is often high uncertainty and fierce competition. Waves of new product introductions are frequently accompanied by premium prices initially, followed by rapid price declines as imitative products emerge. Technology and features are as important to consumers as price, requiring consideration of price/performance competition rather than price competition alone," (Pleatsikas and Teece, 2001)

Evans (2017) argues that this ever-present threat of disruption by a new entrant on the basis of radical innovation is the source of effective competition that keeps the GAFAM incumbents awake at night. He gives the example of Facebook – itself the disruptor of MySpace within a very few years of its creation – almost failing to make the transition from desktop computers to mobile in 2012, clinging on to its 'eyeballs' and advertising revenue only thanks to a massive corporate effort involving hiring hundreds of new engineers (pp19-20). "Online platform competition is dynamic and unpredictable because waves of disruptive innovation expand opportunities for entry and pose challenges to incumbents." Of course, Facebook succeeded, and now, with Google, captures 84% of online advertising revenue (ref).

Drawing on the Schumpeterian tradition, Baumol (2002) distinguished between large disruptive innovations, which he argued was usually due to new entrants or mavericks, and incremental innovation, normally carried out in large organizations. While this is a regularity rather than an iron law, it strongly suggests the empirical importance of disruptive technological entry.

Contrasting anti-trust practice

Given the absence of analytical consensus, different competition authorities have reached widely differing conclusions in certain similar cases, depending on how much weight was placed on these countervailing arguments. For instance, the English courts and French competition authorities took opposite views about whether or not Google foreclosed a competitor in mapping. The English judge, Mr Justice Roth, concluded StreetMap, a free service already in the market, was losing users because it was an inferior product due to lack of investment, rather than because Google placed its own Google Maps product in a more prominent position. He argued specifically that even if Google's practices were to have anti-competitive effects in some areas, the law should not hinder innovation as this would damage the dynamic competitive process.⁶ By contrast, in 2012 the Paris Tribunal de Commerce concluded Google had foreclosed a paid-for competitor, Evermap, and ordered it to pay damages of €500,000. Evermap had claimed Google was practising predatory pricing by allowing the free use of its maps for

⁶ <http://www.bailii.org/ew/cases/EWHC/Ch/2016/253.html>

embedding in their own websites.⁷ This decision was reversed three years later by the Paris Court of Appeal, however, referring to the standard practice of cross-subsidization of one side of the platform by the other by MSPs.⁸

In another example of differences of interpretation, a comparison of four proceedings against Booking.com by four European countries (France, Germany, Italy and Sweden) found significant variation in analysis and actions (Cacinelli and Toledano, 2017). There has been considerable theoretical work on the implications or ‘Most Favoured Nation’ (MFN) or price coherence clauses imposed by online accommodation platforms, as well as broader agency pricing issues (see for example the summary in Vettas, 2017.) However, the theory provides mixed results and there is still relatively little empirical research.

The concrete decisions concerning these platforms differed as to whether only ‘wide’ parity or MFN clauses were objectionable, or ‘narrow’ clauses as well, whether the platform was exerting market power on one or both sides, whether or not new entry was foreclosed, and so on (although a study of subsequent price movements on Booking.com found that in any case in France and Italy prices for comparable rooms on the platform decreased in the year following the anti-trust procedures before increasing again (Mantovani, Piga and Reggiani, 2017). In the UK the Competition and Markets authority closed an investigation in 2015 into Booking.com and other online hotel accommodation platforms when the platforms themselves moved from wide to narrow MFN clauses.⁹ However, the CMA subsequently set out behaviour rules for online price comparison websites of all kinds;¹⁰ and has since opened a consumer investigation into online accommodation platforms, focusing on behaviours by the platforms, such as whether the presentation of information is related to commissions charged to hotels, whether bogus pressure is put on consumers to make bookings, whether discount claims are accurate, and whether there are hidden charges.¹¹

What way forward?

Antitrust authorities thus find themselves in an unsatisfactory and untenable position. On the one hand, there are ever more frequent calls for action to tackle the perceived dominance of big platforms. These come from economists and legal scholars as well as being made increasingly often in the media. For instance, in an emotive comparison, Ezrachi and Stucke (2016) compare consumers to the naïve hero of the movie *The Truman Show*, their true circumstances obscured by the surface benefits of the digital world: “We have no idea about how, and the extent to which, we are being exploited,” (p27). Less colourfully, Khan writes that the current framework of analysis in antitrust, “Is unequipped to capture the architecture of market power in the modern economy.”

⁷ <https://www.legalis.net/jurisprudences/tribunal-de-commerce-de-paris-15eme-chambre-jugement-du-31-janvier-2012/>

⁸ http://www.autoritedelaconurrence.fr/doc/google_ca_25nov_15.pdf

⁹ <https://www.gov.uk/government/news/cma-closes-hotel-online-booking-investigation>

¹⁰ <https://www.gov.uk/cma-cases/digital-comparison-tools-market-study>

¹¹ <https://www.gov.uk/government/news/cma-launches-consumer-law-investigation-into-hotel-booking-sites>

Some of the proposals from those concerned about platform dominance emphasize the need to shift from *ex post* competition assessments and remedies to tough *ex ante* regulation. For instance, Khan argues for either or both of: ‘prophylactic’ restrictions on vertical integration by platforms; or *ex ante* common carrier or public utility regulation, treating at least some of the major platforms’ activities as essential utilities. Similarly, an Inception Impact Assessment published recently¹² by the European Commission as a prelude to a legislative proposal on regulation platform-to-business relations¹³ set out among the options the Commission is considering: regulatory separation of intermediation activities from other, vertically-integrated activities; and the creation of a new platform regulator to set *ex ante* rules of behavior.

Yet without a greater degree of consensus about how to analyze competition in digital platform markets, including methodologies for empirical assessment, it will be impossible for the relevant authorities or courts to do anything other than feel their way along on a case by case basis. Unhelpfully, the OECD (2017) concludes: “This is still an area of high complexity and uncertainty, where lack of intervention and over regulation could both pose serious costs on society, especially given the potential benefits from algorithms. Whatever actions are taken in the future, they should be subject to deep assessment and a cautious approach, (p52).”

The one area of consensus is, perhaps, that: “Governments have failed to revise and recalibrate tools that examine potential marketplace distortions and assess the potential damage to competition and consumers.” (Frieden, 2017). Some of the questions facing antitrust authorities will require significant progress in the underlying economic analysis, including the definition of digital platforms and the extent to which their characteristics differ from other business models, and the dynamics of competition in technology markets.

Despite these disagreements, the literature on MSPs does point to some practical approaches to making systematic competition assessments of the very large digital platforms causing scholarly and public concerns. Anti-trust authorities can use their existing powers, applied within the existing framework of a consumer welfare standard, to better help ensure that even the biggest digital platforms are open to competitive forces. Their attention should focus on the scope for disruptive technological innovation and the dynamic consumer benefits of investment.

This implies that anti-trust enforcement practice needs to change in two important ways: in switching the focus of analysis from prices and consumer switching behaviour to investment and innovation; and in abandoning traditional market definition in favour of a wider assessment of the platform’s market ecosystem.

Technological disruption, innovation and investment

A key question concerns whether or not a disruptive technological shift could plausibly dislodge a dominant incumbent, as this is clearly the main competitive dynamic in the

¹² <http://ec.europa.eu/info/law/better-regulation/initiatives/ares-2017-5222469#initiative-details>

¹³ <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52017DCo228&from=EN>

case of the large platforms. Could an entrant with a superior technology or service plausibly overcome the entry barriers at a minimum viable scale?

It is impossible to predict future technologies, but it is possible to identify incumbent behaviours that either evidence the pressure of the technological competitive dynamic, or indicate attempts to reduce that pressure. The analysis should consider:

- *The incumbents' spending on innovation, and what they are spending on.* Petit (2016) argues that all the GAFAM group manifest high R&D spending as a proportion of their revenues, which is taken as a sign of their genuine concern about continuing to deliver a high quality service to their users and avert technological challenge. Petit suggests the R&D/profits ratio and retained earnings as a sign of a firm's commitment to innovation (p66).

However, it is also necessary to explore whether this is spending on novel research to serve users, or alternatively further development of algorithms to enable more effective advertising auctions or finer consumer targeting and price discrimination. The concept of predatory innovation is useful here, for example innovations that reduce compatibility or the ability of (potential) competitors' products and services to access the dominant platform (Newman, 2012; Schrepel, 2018). Examples could include: changing the size or operation of connectors, or eliminating software compatibility. Schrepel argues for formalizing the concept of predatory innovation, parallel to the concept of predatory pricing.

- *Innovation versus acquisition.* There are many examples of the GAFAM platforms acquiring smaller, innovative companies (Lopez et al 2017): in services closely aligned to their 'main' activity (for example Facebook acquiring Instagram, Google acquiring DoubleClick); in enveloping adjacent services in which they are seeking to bring 'on board' other groups of users (Microsoft acquiring LinkedIn, Amazon acquiring LoveFilm); and in addition some acquisitions of innovators in areas such as robotics, AI, autonomous vehicle technology. Competition authorities should be scrutinizing all such categories of acquisitions, and enforcing more rigorously existing merger controls. The acquisition of small innovators is more likely than not to weaken the competitive dynamic. Shapiro (2017) argues in particular for tough enforcement against the acquisition of potential future rivals. Accepting that it is intrinsically hard to identify genuinely threatening technologies, he writes:

“There would be a big payoff in terms of competition and innovation if the DOJ and FTC could selectively prevent mergers that serve to solidify the positions of leading incumbent firms, including dominant technology firms, by eliminating future challengers. As a general principle, the greater and more durable is the market power of an incumbent firm, the larger is the payoff from preventing that firm from acquiring the smaller firms that, if left to grow on their own, would become its strongest challengers. Sound competition policy would tolerate some false positives – blocking mergers involving targets, only to find that they do not grow to challenge the incumbent – in order to avoid some false negatives – allowing mergers that eliminate targets that would indeed have grown to challenge the dominant incumbent.” (p24)

Conventional approaches to market definitions are positively unhelpful in this regard. Even acquisitions of innovative businesses in apparently unrelated fields should be scrutinized with scepticism, as different areas of technology may converge more rapidly than non-expert economists and lawyers may realize. For example, when Facebook realized the threat the consumer move to mobile posed its core advertising business, it responded with a series of relatively small acquisitions in mobile. It is now entirely unclear how to remedy the Facebook-Google duopoly in online advertising, absent another technological *deus ex machina*.

- *Wider markets.* Conventional market definition, aside from the inherent difficulty in applying the usual technique to the case of MSPs, causes adverse effects on consumer welfare in other markets to be overlooked. The economic analysis of vertical integration is more useful than standard market definition. Competition authorities have generally become less concerned about vertical integration, as long as there is competition downstream among consumers or final users. However, as the competitive dynamic among platforms concerns innovation, any inquiry needs to explore not only incentives to innovate by the platform itself – as argued above, is it fearful of disruption and innovating to stay dominant, or engaging instead in predatory innovation, or indeed not spending much on innovation? – but also incentives to innovate among suppliers to the platform. The same Schumpeterian dynamic is also relevant at that level to the economic welfare calculation.

The analysis is without doubt complex, and there is even debate in the literature about the pro-competitive merits of ‘walled garden’ ecosystems (Gawer and Cusumano, 2014). One example of dominant platforms harming the incentive to innovate among suppliers is the impact of the Google-Facebook online advertising duopoly on the print media industry. Both ‘sides’ of these platforms arguably pay for access: consumers through their data and exposure to advertising, as well as user generated content; and formal content providers through their investment in reporting, filming or writing. These platforms seem to have successfully captured the lion’s share of indirect network externalities themselves. However, the welfare cost of their online advertising duopoly is the lack of investment and innovation by formal content providers, whose revenues and profits have fallen sharply. Of course, in this example, the ultimate social welfare cost of the print media’s loss of capacity to provide a high quality and reliable service may prove to be high indeed. Uber might be considered a counter-example as its entry in many urban taxi markets has stimulated quality of service and innovation among other suppliers, prompting them to develop their own apps or provide cleaner vehicles. In this case – without overlooking the plentiful evidence of its unethical corporate behaviour in other ways – the competitive dynamic appears healthy.

In general, in an environment of dynamic rather than static and horizontal competition, the investigation should not only focus on incentives to invest and innovate by the platform and its direct competitors, but must also consider upstream markets and neighbouring markets brought into the structure of cross-subsidies across different groups of users.

It is also worth noting that the argument that disruptive innovation-based competition is a genuine threat will gain much greater force if and when it occurs, and the market

position of one of the dominant platforms is so disrupted. The passage of more time without such disruption will, conversely, weaken this defense, and strengthen the case for a more vigorous anti-trust approach. MySpace was founded in 2003 and was the biggest social media platform by 2007; Facebook was founded in 2004, overtook MySpace in early 2008, and is now clearly the dominant platform. It is more dominant in terms of user numbers or any measure of market share than the then-incumbent it disrupted, and has been in that position for a decade. Google overtook Yahoo in global search market share in 2002, so has been dominant for 15 years. While longevity is not a definitive sign that disruptive challenge is impossible, it is suggestive, and should further encourage anti-trust authorities to apply their enforcement tools rigorously in the case of the large digital MSPs.

Anti-trust enforcement and ex ante regulation

I have argued that there is ample scope for competition authorities to apply their existing powers, within a consumer welfare framework, to address the specifics of competition in digital platform markets and the growing concerns regarding the potential market dominance of the largest digital businesses.¹⁴ Although this will require abandoning the standard tool-kit in favour of a case-by-case analysis of a platform's incentives to innovate, evidence provided by its behaviour as to the importance of continuing innovation as a strategic choice variable, and the ability of the entire ecosystem each platform has built around itself to invest and innovate.

It is worth briefly noting, however, that ex post enforcement activity may not be enough to address all the techniques large platforms use to minimize the threat of disruptive competition. Policymakers need to consider four areas in particular: standards and interoperability; data portability; transparency of terms and conditions; transparency of pricing.

Standards and interoperability

Open and interoperable standards can be important enablers of competition. For example, the UK's CMA mandated Open Banking Standards in its bid to increase competition in the retail banking market by enabling the entry of fintech innovators through access to APIs based on common technical standards.¹⁵ Setting industry technical standards has long been the regulatory approach in telecommunications and broadcast markets as well, albeit generally on the basis of industry consensus – not to mention in the growth of the internet and web. There is a case for considering the role of technical standards as a competition framework more widely at the applications layer as well as the network layer of technology markets, as the digitalisation of the economy progresses.

Data portability

¹⁴ As Shapiro (2017) points out, anti-trust law is a poor weapon to deploy against other concerns, such as the role of financial contributions in politics.

¹⁵ <https://www.gov.uk/government/news/cma-paves-the-way-for-open-banking-revolution>

Consumers pay for ‘free’ online services through their attention to advertising, and their provision of personal data for example about their interests and purchasing habits. When aggregated, or personalised but matched with other data, this becomes immensely valuable to the digital platforms. Yet consumers have no ability to switch their existing accumulation of personal data to competing providers. This is also a standards question, as individual data ownership and portability would require interoperable API standards among digital platforms. It should be noted that to the extent digital platforms involve indirect network effects, data portability would not encourage switching – as one could not transfer all of one’s network too. However, many aspects of platforms’ services do not rely on network effects, except to the extent that their envelopment strategies have enabled cross-subsidies.

Consumer transparency

Competition analysis places great weight on price transparency, essential for consumer to be able to compare providers and switch as they wish. When price is not the main competitive weapon deployed in the market, transparency must apply to the dimensions on which the platforms are in fact competing. On the consumer side, this will be quality of the product. On other sides, it will also be data. Although consumers increasingly appreciated that their personal ‘data exhaust’ is used in this way, the terms and conditions they are asked to accept are notoriously long and obscure (Athey, 2017), while the online advertising market non-transparent (Graham and Dutton, 2014). Regulators must surely address the transparency questions. There also seems a strong case for a wide inquiry into the operation of the online advertising market, rather than case by case anti-trust assessments in response to complaints from GAFAM competitors.

Given that platforms have no business – and lose it potentially very quickly indeed if their consumers are dissatisfied – there are other aspects of consumer behaviour that may relevant to this issue. In particular, is there multihoming on the consumer side of the platform, and also evidence of switching actually occurring? For example, the transaction costs of switching to a new search engine or a new accommodation platform might be low, but the transactions costs of switching to a new social media platform are higher (because of the large network effects involved, because a large amount of personal media would be marooned, and because a bundle of services such as messaging and payments are consumed together). Although there is multihoming in social media (people use Facebook, Twitter, Tumblr, and others), these are often used as complements rather than substitutes. It is difficult or impossible to quit social media platforms without losing a substantial amount of personal information.

Algorithmic price discrimination

At present there seems no consensus or, more importantly, evidence on the question of algorithmic price discrimination (OECD 2017, Petit 2017). As one of the consumer benefits of the large platforms is the improved matching of consumer wants to supplies, along with greater variety and discovery, the idea that there is a single ‘correct’ market price is somewhat problematic. Calls for regulatory pre-approval of algorithms (see for example Khan 2017) seem both unwarranted, certainly absent some empirical evidence, and unlikely to be effective given the inevitable and large asymmetries of information between regulators and businesses. However, there is a case for further investigation of the use digital platforms make of their tracking of users – an empirical challenge given how hard it will be to access the required data (Vettas, 2017, p227). Users consent to

this in the (generally obscure) terms and conditions and are made aware of it (in the EU) by the mandated cookie consent on individual websites. However, the information harvested could potentially be used for covert price discrimination as well as more overt personalizing of offers.

Summary

This paper has noted that the economic characteristics of MSPs mean standard competition policy tools and intuitions cannot be applied and interpreted in the familiar ways. Yet there is no consensus either in the scholarly literature or public debate about how to evaluate the impact of digital platforms, particularly the large businesses dominant in certain markets. The growing concern in some quarters has prompted suggestions that anti-trust policy has been impotent, and tough regulatory intervention of some form is required. Some authors have argued further that the consumer welfare standard for competition policy is inadequate to deal with large and powerful companies, such that the legal framework for competition and regulation in these markets needs rewriting.

I have argued here that without radical measures, operating within their existing legal and analytical frameworks, competition authorities can do more to address some of the concerns expressed about MSPs. The assessment of competition can remain focused on consumer welfare; but it must address the longstanding shortcoming in competition inquiries that in practice price is the focus of the welfare question, often overlooking harder-to-measure benefits such as quality and variety, and ignoring dynamic consumer welfare in favour of static efficiencies. When competition is for the market (not in the market), the case by case assessments must look at questions of innovation and investment. When markets – whether upstream or ‘enveloped’ – are linked by a platform, the incentives to invest and innovate across the whole ecosystem need to be considered. While the traditional rule-of-thumb tools are no longer helpful, this kind of analysis is certainly feasible, and is not ad hoc because it is rooted in an economic analysis of consumer welfare. The anti-trust authorities should ask for evidence of welfare-enhancing innovation by the platform, should be highly sceptical about any (further) acquisitions by large platforms, and should abandon conventional market definition in favour of a wider view of the ecosystem of markets centred around a platform.

There is also a case for considering new *ex ante* regulatory tools to enhance the competitive process in digital platform markets: standards and interoperability, data portability, consumer transparency, and algorithmic pricing. In each of these, the challenge is translating well-established principles of competition analysis, law, and enforcement practice into the new domain of digital platforms.

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