

CPI's Asia Column Presents:

Whether “Big Data” Could Facilitate Monopoly in the Platform Economy and How We Shall Step In

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“Big Data”, one of the hot topics in recent years, has been widely discussed. The impact of “Big Data” on competition interests both practitioners and scholars. The major concern from antitrust perspective is whether “Big Data” could facilitate monopoly, especially in the platform economy where data could be easily accessed or collected by platforms from multiple sides of the market. The purpose of this article is to review the role of data in different stages of platform development and analyze the possibility of monopoly based on the interplay between data and platforms. We will also discuss when and how authorities should intervene with the anti-competitive behaviors in the platform economy driven by “Big Data” in different scenarios.

1 General introduction of recent discussion about whether “Big Data” will facilitate monopoly

In the digital age, the volume and variety of data generated on a daily basis is growing at an unprecedented rate, so is companies’ ability to analyze and exploit it. The innovative application and exploitation of data is of immense value to businesses. This gives rise to concerns that the control of vast amounts of data gives such businesses enormous power. As observed by the Economist,

“[A] new commodity spawns a lucrative, fast-growing industry, prompting antitrust regulators to step in to restrain those who control its flow. A century ago, the resource in question was oil. Now similar concerns are being raised by the giants that deal in data, the oil of the digital era. Vast pools of data can act as protective moats.”¹

1.1 *Big data provides competitive advantage*

1) Better know your customer and provide better product/service

Data can help improve a business operator’s product or service, which can be achieved by the learning effects of computers. Take the example of a web search engine - by collecting and analyzing data on the searches and clicks of users, developers can improve and refine a search engine and its supporting algorithm. This can improve the quality of search results and thus increases the search engine’s popularity.

Data is vital to “matching platforms” or “sharing economy platforms” such as online dating platforms (e.g. Tinder) or online ride hailing platforms (e.g. Uber). The time taken to match participants depends on the number of participants on each side and the volume of data collected through intermediary services. Adding buyers gives sellers greater incentive to participate in a platform and vice versa.² More participants lead to more data and consequently more efficient matching between the demand side and the supply side, which in turn attracts more new participants and thus increases the business value of the platform.

2) Provide targeted advertisement and maintain user loyalty

¹ “The world’s most valuable resource”, The Economist May 6th 2017.

² See, e.g., id.; Sarah O’Connor, The Gig Economy is Neither ‘Sharing’ nor ‘Collaborative’, FIN. TIMES (June 14, 2016), <https://www.ft.com/content/8273edfe-2c9f-11e6-a18d-a96ab29e3c95>.

Data can also be used to better target customers and to provide them with individualized advertising, services or products.³ Online advertising based on so-called “behavioral targeting” can serve as an example. “Behavioral targeting” is the serving of online ads to specific users based on (comprehensive) profiles of the users generated by observing their surfing habits.⁴ Internet platforms track and collect users’ browsing history and by analyzing these information platforms are able to understand user preferences and send targeted advertisements, thus reducing their advertising costs by addressing target customers only. Moreover, data collection may increase switching costs as the provider most used by an individual has more information on him or her and is able to tailor service offerings to that particular individual,⁵ which effectively maintains user loyalty.

3) Explore new business opportunity or business model

Access to data enables firms to exploit new business opportunities. By reusing data gathered in the context of one service for a different purpose companies may provide new services based on these data, e.g. mobility data generated by mobile network operators and mobile phones are used by navigation service providers to better show traffic jams and route their users around them.⁶

Admittedly, data helps platform operators better understand users’ needs, improve products or services quality, or provide innovative offerings, all of which contribute to enhanced user experience. Better user experience helps retain existing customers and attract new customers on both sides of the market as a result of network effects. The more participants/transactions a platform has, the more data it collects, and vice versa. Over time, the platform will accumulate a vast amount of users and data and eventually may obtain market power.

As noted by the Economist,

“[T]his abundance of data changes the nature of competition. Technology giants have always benefited from network effects: the more users Facebook signs up, the more attractive signing up becomes for others. With data there are extra network effects. By collecting more data, a firm has more scope to improve its products, which attracts more users, generating even more data, and so on. The more data Tesla gathers from its self-driving cars, the better it can make them at driving themselves—part of the reason the firm, which sold only 25,000 cars in the first quarter, is now worth more than GM, which sold 2.3m.”⁷

³ Competition Law and Data , a joint report by the French and German competition authorities on 10th May 2016, page 10.

⁴ See smm Sales & Marketing Management: Behavioral Targeting, <https://salesandmarketing.com/article/behavioral-targeting-what-is-behavioral-targeting/>, CBS News, <http://www.cbsnews.com/news/what-is-behavioral-targeting/>.

⁵ Competition Law and Data , a joint report by the French and German competition authorities on 10th May 2016, page 28.

⁶ Competition Law and Data , a joint report by the French and German competition authorities on 10th May 2016, page 10.

⁷ “The world’s most valuable resource”, The Economist May 6th 2017.

1.2 *Data is not valuable as it is not exclusive or irreplaceable (mainly due to multi-homing)*

Data may confer competitive advantage on operators; however, some view this differently as they think data is ubiquitous, of low cost and widely available. Therefore it is only of limited value to businesses and the idea that market power can be obtained through the utilization of data is not well grounded.

Non-rivalry of data

Data are non-rival goods in the sense that someone having and using a dataset does not prevent others, be they competitors or not, from having and using the same data as well (provided they can access them).⁸

Non-rivalry of data could be a result of “multi-homing”, i.e., when individual users switch among several platforms (for example, online shopping platforms - Taobao, Jingdong, Amazon; or social networking platforms - Wechat, Line, WhatsApp) that provide the same kind of services and thus give data about themselves to several providers, none of which has any exclusivity on those data. Some scholars are of the view that multi-homing reduces the market power of platforms, as competing platforms also have access to the same kind of data. Such non-rivalry of data makes it impossible for platforms to gain competitive advantages over others.

Non-irreplaceability of data

Many scholars also point out that data is neither unique nor irreplaceable, and thus cannot constitute barriers to market entry. Data can be collected from various sources and thus business operators have many alternative ways to obtain the data needed. A prominent example is the data broker⁹ in the US, which collects data from government sources, public available sources (for example social media, blog and the Internet), and commercial data sources. Data brokers then conduct data analytics and sell the products to business operators, in which case similar data is available to anyone who can afford to pay for it.

Could data give some firms market power? The interplay between data and platforms may provide insights into this question.

2 The role of data in different stages of platform development and how “big data” may facilitate

⁸ Nils-Peter Schepp and Achim Wambach, On Big Data and its Relevance for Market Power Assessment, *Journal of European Competition Law & Practice*, 2016, Vol. 7, No. 2, p. 121.

⁹ Data brokers collect person data through various sources and sell these data to business operators.

monopoly

The “platform” has been widely recognized as the central element of digital markets or data-driven markets.¹⁰ Data-driven business models often involve multi-sided platforms. Companies offer consumer free services with the aim of acquiring valuable personal data to assist advertisers in better targeting them with behavioral advertisements.¹¹ In such “free markets”,

“some zero priced services compete with price based services and/or that consumers may pay a price in other forms. This may take the form of nuisance stemming from being exposed to advertisements or by giving up privacy or by providing their data, hence using data as a kind of currency to pay with”.¹²

The theory that data is a “consideration” in the platform economy supports the view that data provides a platform with “competitive advantage”.

It is not a new phenomenon that businesses rely on data. Even back in the “old economy”, customer data was an essential source of information for any undertaking.¹³ It will be interesting to review the role of data in different stages of platform development to better understand whether “big data” may facilitate monopoly.

2.1 *Initial stage of the platform economy where data was not recognized as consideration*

The discussion around platform economy dated back to 2000, when both the academic circle and the legal practitioners began to study the platform as an emerging economic phenomenon.¹⁴ From the international bank card network antitrust case to the competition in the media sector and among different operating systems, the basic theories regarding platforms and two-sided markets have gradually taken shape as scholars’ study into how platforms operate and compete differently (as compared to the traditional economy) deepens. At the initial stage of platform economy (exemplified by the bank cards, media and operating systems), data was not seen as consideration for the products or services supplied. Participants on both sides were required to pay for the products or services supplied by the platform in addition to providing data to it.

At the early stage of telecommunication services, telecom operators charged both the user making the call and the person answering the call. Likewise, credit card organizations such

¹⁰ “Competition policy: The challenge of digital markets”, Special Report No 68, by the Monopolies Commission in Germany in 2015.

¹¹ “Big Data and Competition Policy”, Maurice E. Stucke & Allen P. Grunes.

¹² Nicolai VAN GORP and Dr Olga BATURA, Challenges for Competition Policy in a Digitalized Economy, Study for the ECON Committee, July 2015, p. 55. Available at <http://www.europarl.europa.eu/studies>.

¹³ “Competition Law and Data”, a joint report by published by the French Competition Authority and German Federal Cartel Office. Available at http://www.bundeskartellamt.de/SharedDocs/Publikation/DE/Berichte/Big%20Data%20Papier.html;jsessionid=AE7DFD2E9E8858CFE8736871D812D9AB.1_cid378?nn=3599398.

¹⁴ Katz in 2001, Rochet and Tirole in 2002, Wright in 2004, and Roson in 2004.

as MasterCard and VISA charged service fees from both merchants and card holders. Users participating in the transaction not only pay service fees to the platform but also provide it with personal data or information such as their name, address, and transaction data. (See Diagram 1 below)



The information or data that users provide to platforms “for free” is valuable for their business operations even at the early stage of platform economy. For example, telephone companies use the telephone number they collect to create a yellow pages directory or for telemarketing, and credit card organizations do credit checks by analyzing the historical transaction data of users.

2.2 *Mature stage of the platform economy where data has been recognized as consideration paid by users of products or service at the free side of the market*

In recent years, there has been a growth of “free” products and services. Operators in traditional industries such as print media and television offer free magazines or TV programs to consumers and recoup the product cost by charging service fees to advertisers. This business model where one side of the market is for free is commonly adopted by Internet platforms. For example, Taobao (the online shopping platform developed by Alibaba) provides free services to the purchasers on one side but collects fees from the merchants on the other side. Although products or services on one side of the market may exhibit a “price at zero”, they are not absolutely free. One of the widely recognized explanation regarding this business model could be “it increases the overall profits they can earn from selling the free product and an accompanying product to either the same customer or different customers. The accompanying product may be a complement, a premium version of the free product, or the product on the other side of a two-sided market.”¹⁵

However, there is no valid evidence to show that the price level of the products or services on the non-free side of the market is above the industry average such that the overall profits can cover the cost of all sides of the market.¹⁶ Have users on the free side paid any consideration other than the purchase price? More and more studies indicate that “zero-price markets feature at least two types of exchanged nonmonetary costs: information and attention costs”.¹⁷ Thus instead of raising the price in the non-free side of the market to cover the cost

¹⁵ David S. Evans. The Antitrust Economics of Free. Competition Policy International.2011.
¹⁶ If the price is above the industry average, the products or services on the non-free side of the market will be less competitive compared with similar products or services in the traditional marketplace.
¹⁷ John M. Newman. Antitrust in Zero-price Markets: Foundations .University of Pennsylvania Law Review, 2015.

of free side of the market, the information and attention costs may have reduced the costs of products or services on the non-free side of the market and make the “free market” model feasible. In the ride hailing industry, platforms can match customers with drivers more efficiently by analyzing, using algorithm, the data about customers’ ride hailing habits and locations it collected. And online shopping platforms always predict the products that a specific user may be interested in based on the information about the user’s gender, age, purchase history or other aspects they have collected, and make recommendations to the user. This shortens the “on-shelf” time of products and reduces warehousing costs.

One question is worth considering: at the primary stage of platform development, the above information or data was already provided to the platform, and theoretically such data could be used to reduce the cost of the products or services on the other side of the market. But surprisingly no free market emerged at that time and data was not regarded as consideration. This is probably because data plays different roles at different stages of platform development. At the early stage, the volume and variety of the data collected were very limited and the analytic capability of platforms was not well developed, so little use could be made of the data collected. Additionally, early stage data analysis could only make small cost reductions to the paying side of the market, which is far from enough to cover the cost of the “free” side of the market. As a platform evolves, so does its capability to process and analyze massive data. And multi-sided platforms emerge at a later stage, whereby a large variety and volume of user data are collected and exploited, which greatly improves efficiency and reduces cost on the non-free side of the market. The interaction between big data and multi-sided platforms has made it possible for platform operators to recoup the monetary cost on the “free” side of the market by the gains on other sides of the market. (See Diagram 2 below)



The role that data plays in different stages of platform development as described above sheds light on the interplay between data and platform development. This makes us think about the possible scenario of the rise of big platforms across multiple sectors with advanced algorithm and its impacts.

2.3 The possible scenario of the rise of “big platforms” with a large volume and variety of data concerning multiple sectors and its impacts

Concerns about the rise of “big platforms” are mainly due to the snowballing effect generated by the interplay between “big data” and “multi-sided platforms”. Analysis and exploitation of big data help improve service quality and transaction efficiency, reduce cost, and help platforms explore more areas of business. Both the volume and variety of the data collected are critical in data analysis, which incentivizes platforms to explore diverse business areas as much as possible. Platforms engaged in multiple sectors are able to collect a larger volume and variety of data. As such data snowballs, the products or services on the other side the platform diversify and better serve the needs of customers. Under such circumstances “big platforms” across various sectors with numerous users may gradually arise.

Can “big platforms” monopolize? As discussed above, platforms can use big data to help their self-learning computer algorithms optimize behavioral advertisements, individualize promotions, and pricing.¹⁸ With more data about users, the pricing algorithms can better predict user behaviors and preferences and thereby may price discriminate in order to maximize profits, leaving no room for consumer choices. Moreover, in addition to providing a marketplace, platforms are gradually engaging their own dedicated suppliers to serve the platform’s customers. Like vertical integration in most markets, vertical integration in the platform economy could result in increased efficiency, but may in some circumstances result in an anticompetitive foreclosure. It is concerned that if a vertically integrated platform controls a large portion of supply, customers might be unwilling to switch to other platforms if those platforms do not have enough participating suppliers due to the network effect, and platform operators may utilize consumers’ reliance on or loyalty in their platforms to engage in anticompetitive behaviors like excessive pricing, discrimination and bundled sales, which is detrimental to consumers. (See Diagram 3 below)



3 Whether regulatory measures shall be taken and when?

It is undeniable that “big platforms” perform better in matching supply and demand; however, platforms with big data are more likely to monopolize. Where anticompetitive effects thus incurred prevail over efficiencies, should antitrust regulatory authorities intervene? And what are the appropriate measures to be taken?

¹⁸ Ariel Ezrachi and Maurice E. Stucke, *Virtual Competition - The Promise and Perils of the Algorithm-driven Economy*, page 94.

3.1 Balancing efficiency/innovation and consumer protection in different stages of platform evolution in different industries

Although the platform economy is developing rapidly, platforms in many sectors have not yet evolved into the point where the use or exploitation of data and algorithms impedes competition. Traditional media platforms like print media develop slowly and the well-established card payment ecosystem has now been disrupted by third party online payment platforms.

New data-driven platforms are springing up, adopting two-sided or multi-sided market models where one or more sides of the market are free, such as news apps, web TV, ride hailing apps, and take-away platforms. The boom of new platforms in China is having a dramatic impact on traditional industries, but most of these platforms are not yet profitable or making sustainable profits. These innovative platforms share some common features, like innovative business models to meet consumer needs and very low prices to cultivate user habits. It is presumed that when the platform economy matures the cost reduction for the products and services on the non-free side of the market as a result of using and exploiting the data collected must be enough to cover the cost of the free side of the market. Based on this assumption, the reason why some platforms are unprofitable is probably because they did not fully exploit the value of the data collected, or the money paid by the participants on the non-free side(s) of the market does not cover the monetary cost on the free side of the market. In other words, these platforms have not matured to the point where the snowball effect is triggered by the interaction of big data and a multi-sided platform. As such, it might be too early for competition authority to intervene at the current stage, as the possible anticompetitive effects and the efficiencies brought about by innovative platforms need to be balanced. (See Diagram 4 below)



Nevertheless, if the business model driven by the interaction between big data and platform attains sustainable profits, and the cost reduction on the non-free side of the market generated from exploiting the value of a large volume and variety of data collected from one or multiple free sides of the market could cover the cost of the free side(s) of the market, then antitrust authorities may have reasonable grounds to believe that such platforms is “mature” and could evolve into “big” ones. Actually there are already big platforms that have achieved

profitability, such as Google and Microsoft. Although antitrust authorities have not investigated these big platforms from the perspective of big data, they have found that such platforms hold dominant market positions based on traditional antitrust principles.

In sum, the evolutionary process of platform economy with interaction between big data and platforms suggests that antitrust authorities may need to take into account the different stages of platform development and the profitability of platforms in antitrust enforcement.

3.2 *Consumer law, unfair competition law, or anti-monopoly law?*

It is also noteworthy that platforms even still in the developing stage may already have a strong customer base, and their improper business conducts, such as sales below cost (on the “free” side of the market), refusal to deal, exclusive dealing and discrimination, may impede competition and harm consumers. In particular, there has been debate about whether the practice of platforms (e.g. ride hailing or bike sharing platforms) subsidizing users is anticompetitive. Some consider that subsidization by platforms constitutes predatory pricing under anti-monopoly law. However, as discussed above, these platforms are still developing without sustainable profits, and it might not be meaningful to establish a “dominant position” based on the number of users in this scenario as the platform is not mature enough to be the candidate of “big platforms”. Therefore, intervention by antitrust authorities at the current stage may chill innovation.

But if the commercial activities of platforms do impede competition and harm consumers, intervention by authorities shall be inevitable. If anti-monopoly law is not appropriate at this stage, would it be possible to regulate these behaviors by applying the anti-unfair competition law or consumer protection law? For instance, authorities may try to explore the feasibility of regulating the conducts of offering products or services free of charge or granting subsidies to the participants using the theory of “selling products below cost” under anti-unfair competition law¹⁹, and regulating the behaviors of designating the trading counterparty by applying the consumer law²⁰. The anti-unfair competition law or consumer protection law may not perfectly serve the purpose, but we shall at least explore other options to adapt in the new era of data and platform.

In sum, we tend to believe that developing platforms that have not achieved profitability are unable to engage in anticompetitive monopoly conducts, while matured platforms with sustainable profits have better incentive and ability to carry out monopolistic behaviors. Should antitrust authorities intervene and when? This needs to be assessed on a case by case basis. Antitrust law, the Damocles' sword for platform operators, should be applied

¹⁹ “Business operators shall not sell products at a price below cost, with the intention to exclude competitors from the market”, Article 11 of the Law of the People’s Republic of China against Unfair Competition, promulgated by the Standing Committee of the National People’s Congress of China, effective as of December 1, 1993.

²⁰ “Consumers have the right to choose the products or services independently”, Article 9 of the Law of the People’s Republic of China on the Protection of Rights and Interests of Consumers, promulgated by the Standing Committee of the National People’s Congress of China, effective as of March 15, 2014.

prudently. Regulation can chill innovation by increasing costs and decreasing potential returns, thereby impeding or preventing new entry and depriving consumers of the benefits of new product and service offerings. Legislators and regulators face a challenging task in balancing these concerns. In the blossom of platform economy, regulators should call on antitrust, anti-unfair competition, or consumer law or even privacy law in their enforcement depending on the specific stage of platform development, so as to properly balance consumer protection with innovation in platform economy.