Anti-monopoly Law Challenge of Internet Enterprise Competition in the Era of Big Data

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Abstract—**In the era of big data, data, as a resource, plays a strategic role in the competition among Internet enterprises. In this era, Internet-based competition is the core of data. It takes platform as media and presents oligarchy as the pattern, which become the new characteristics. Internet enterprises use data to develop their transformation interests and competitive advantages. The Internet excludes the negative consequences impeding competition based on the advantages of data competition. This paper analyzes the challenge of Internet-based competition to the review of Antitrust Law from three perspectives, i.e., market definition, standards of turnover and standards of business centralized declaration based on the review mechanism of traditional Antitrust Law.**

Keywords—Big data; Internet enterprise; Data monopoly; Data competitive advantage

I. DATA AND DATA COMPETITIVE ADVANTAGE IN THE ERA OF BIG DATA

The term of "big data" was first formally put forward in a research report issued by the McKinsey Global Institute in 2011. This report elucidated that the processing of these data could exert potential value from the perspective of economy, which attracted global attention.

Different from the information era that focuses on information technology, the age of big data emphasizes data analysis and sharing. Currently, the data competitiveness is to master data and obtain valuable information through data analysis. Meanwhile, since data and information are interrelated, data can reflect the attribute of objective things and concrete manifestation of information. Through processing, the data become information, and the information can be stored and transferred after it is digitized and transformed into data.

The management guru Michael Poter proposed the view of enterprise competitive advantage in Competitive Advantage published in 1985. According to the theory of Poter, "Competitive advantage, as a special comparative model, could make the enterprises obtain the advantages by which they can exceed their competitors on the market. The maintenance of competitive advantage refers to maintaining the unique competitiveness of enterprises, but the precondition is to obtain economic value by replacing or imitating their competitors." Since 2003, the economics research on improving enterprise competitiveness with big data began to popularize in business economy, and the big data technology could be applied to any competitive intelligence system of enterprises. In the field of internet enterprises, data creates tremendous transformational benefits due to the nature of bilateral markets and platform operation. Hence, the unique competitiveness can be formed through mastering and controlling data, namely data competitive advantage.

When it comes to the definition of data competitive advantage from a legal perspective, the law elements of data competitive advantage include data, competition and dominant position. The legal definition of data is as mentioned in the preceding paragraph. Competition refers to the core element of anti-monopoly law regulation; the enterprise behavior regulated by anti-monopoly law refers to the behavior that carried out in competition, takes competitive advantage as the goal, interacts with other competitors, and has the function of promoting or hindering on competitive environment. The dominant position regulated by anti-monopoly law means that dominant position is the result of its advantage strengthening, of which the determination of dominant position is the precondition to determine whether an enterprise abuses its dominant market position. However, the competitive advantage and even dominant position caused by data value cannot be affirmed correctly by the adjustment system of current anti-monopoly law.

Data competitive advantage is a term with neutral value. Through taking full advantage of the value of data, improving corporation information system, the enterprise can obtain advantages during development, which is a new development opportunity for enterprises in the era of big data. However, some enterprises have the behaviors of abuse of data competitive advantage, for instance, covering up the data, data monopoly and others, to damage competition, which should be regulated and controlled by anti-monopoly law.

II. New Characteristics of Internet Enterprise Competition in the Era of Big Data

Through comparing the traditional industry and the internet industry, the results demonstrate that the competition in traditional industry is based on the product competition, which presents the characteristic of unitary competition. However, the competition in modern internet industry is established on the foundation of information competition, showing the characteristic of ecotypical competition. The leaders of several Chinese internet giants spontaneously emphasize a word—data in the statement on the company's development strategy. On account of data, the internet enterprise competition presents new characteristics in information era. Due to the existence of these new characteristics, it is difficult to carry out the alignment pattern of anti-monopoly generated relying on traditional industrial age.

A. Data Competition Oriented

During digital economy, the big data represented by user data have become competition core in internet industry, just as the indispensability of petroleum and electric power to traditional industries. Through a large number of accumulation and in-depth analysis of user data, the operators can master the user preference, consumer demand, consumption level and other information. Therefore, personalized commodities, purposeful advertisement putting, innovative commercial pattern and so on can be launched in time, to obtain tremendous economic benefits. The Statistical Data of China Big Data Development Survey Report (2017) indicated that the application of big data can realize intelligent decision (55.8%), improve operating efficiency (48.2%), control management risk (25.7%), create new business revenue (22.4%), enhance customer satisfaction (21.6%) and strengthen production capacity (21.4%), etc.

With the development of cloud computing, internet of things and other technologies, the digital technology can precisely reflect the relationship between man and man, humans and things, things and things. This enormous information superiority will have subversive influence on goods and business models in economic sphere. Meanwhile, it can be predicted that big data will become the most core and basic means of production of operators in the digital economy. In digital economy, mastering more data means mastering greater competitive advantage; the data is not only the core productivity but also the core of competition. In digital market, various enterprises take collecting, processing, excavating and utilizing user data as core goal from social chat, online shopping, and search engine to logistics and so on.

B. Taking Platform as the Medium of Competition

The platforms are conducive to integrate information, reduce transaction cost, and enlarge business scope, etc., so it becomes an imperative business model in digital economy and the medium of operators for competition. In platform-based business model, the operators face bilateral markets and multi-sided markets, including providing free or cheap quality service for vast network users and paid service for advertisers, value-added service providers and merchants. Therefore, cross-subsidization can be conducted and the overall profits of platform can be realized.

The big data is the competition core in platform competition, the products and services launched on the platform are the tools for collecting data and attracting flux. Hence, some platform operators who have different business scope may have conflicts repeatedly for mastering data. Due to this characteristic of platform competition, direct competitive relation is generated between the enterprises operating different products, for instance, Baidu, Alibaba and Tencent, etc. This is because their goal is to establish a platform that focuses on collecting user data, and spread direct market competition based on this platform.

C. Taking Oligarchs as Competition Pattern

It is easy to emerge the phenomenon of "winner-take-all" in the internet industry, namely certain market segment is monopolized by individual or minority operators, to present market pattern of oligopoly. This is particularly true in digital economy, because the more data you have, the competitive advantages will be increase more rapidly, and the market concentration will be higher. For instance, a situation of tripartite confrontation of BAT has existed for a long time in China's internet industry, namely Baidu, Alibaba and Tencent have leading market share in search engine market, e-commerce market and instant messaging market respectively.

First of all, the network effect is a crucial reason for the highly concentrated market. The operators who enter into the market earlier will aggregate a large number of users in the short term, and then the competitors who enter into the market later cannot master these user data. Therefore, it is difficult to break down the market entry barriers formed in scale economy in the short term.

Secondly, since the operators utilize big data research, analyze user preferences and extend their monopoly to other markets continuously, they can capture more user data. The virtuous circle will be formed accordingly, to consolidate and develop the dominant position of original market and new market of operators. In addition, with the advent of the sharing economy, the platform with super-large scale may occur in the future, the data and other competitive factors will be further highly concentrated.

III. THE CHALLENGE OF NEW INTERNET ENTERPRISES COMPETITION TO ANTI-MONOPOLY LAW

A. Benefits and Competitive Advantages of Internet Enterprises Obtained From Data

The data that permeated into various production processes are no longer independent factors, but important means of production in the era of big data. From the initial data to information that directly serves to production, this intangible assets are the inner wealth of the enterprise, the information on enterprise competition based on big data can provide powerful competitive support, which will bring competitive advantage for enterprises.

With the development of times, the entrepreneurs realized that the information in the internet contains tremendous value. Through integrating and utilizing the information, the potential value can be excavated, and the more income can be obtained. Hence, the internet service providers begin to adopt bilateral market model for platform operation. On the one hand, the information will be obtained to a large scale through free or low-price service, on the other hand, through the integrating and utilizing information, the information will be applied to other services with high added-value, and various internet services on the platform constitute an interconnected ecosystem. Taking search service as an example, the search engine provider will obtain a large number of users through providing free search service instead of getting income through providing correct information. The retrieve information of users can be obtained when the users are using search service, to provide accurate advertising display for advertising agencies based on the analysis of retrieve information. Because this search advertising has high integrating degree with the user's requirement, the purchase conversion rate of advertising products will be improved. Hence, high advertising costs will be charged for revenue creation.

B. Implementation Dilemma of Adjustment Mechanism of Anti-Monopoly Law

1) Vague Relevant Market Definition

The direct purpose of relevant market definition is to identify competitors, then the contrast situation of its strength should be investigated, to affirm whether the related parties have dominant position. As we all know, traditional criteria for relevant market definition is "demand substitution", its main implementation methods is the so-called "SSNIP". However, this testing method has predicament during processing the case between QQ and Qihoo. This approach began with anti-trust law in the United States, which took the "suspected goods" defendant as the initial market of investigation, then defendant was assumed as the only operator on initial market (namely "monopolist"). Therefore, which commodities that the consumers should buy when the goods have "slight but significant persistent price increases" can be investigated, these commodities and suspected goods have substitution, which can jointly constitute the same relevant market. For the judgment of "whether the same needs can be met", the courts are generally unable to investigate all consumers, they can only deduce based on the "functional requirements, quality approval system, acceptance of price, and difficult level of obtaining" of

products. In this case, both two courts adopt "SSNIP", which takes the "integrated instant messaging service" (providing three means of communication including text, audio, video) of Tencent's QQ as initial market, and takes "the demand for instant messaging services" of users as the standard. The investigation of substitutability can be carried out on the basis of the above various elements, and the relevant market is defined as "instant messaging service market in mainland China" in the final judgment, including integrated instant messaging services, cross-platform instant messaging services, cross-network instant messaging services and non-integrated instant messaging services in mainland China.

However, after accomplishing the above definition, the competitors on the market are not specified in final judgment, which indicates that the recognition of competitors is not the goal during operational process. Otherwise, three demands should be identified in the case, and there are three groups of different competition relationship among these three demands. Therefore, three markets need to be defined, which are determined by the characteristics of "bilateral market" of business model for two internet enterprises.

2) Difficulty in the Determination of Dominant Position

In the so-called "new economy" industries such as the internet and software, the determination method that regards "expanding and output capacity of other operators" as the decisive factor is bound to be inapplicable. The costs mainly occur in the production and sales section in the traditional market, and the expanding and output capacity is likely to be limited by financial resources and technological level. However, the cost mainly comes from the R&D phase in new economic industry, the marginal cost approaches zero after entering into production process. For instance, for Tencent, Qihoo, MSN or Fetion, no additional investment is required for adding a new user. In consequence, every operator has the "financial resources and technical conditions" required to expand output. Precisely speaking, the capacity of any operator is unlimited. Under the circumstances, it must be able to prevent the consumer's demand from transferring to the competitor's goods, to obtain dominant position. Because once this transfer occurs, competitors will have the ability to adequately meet these needs adequately, and consumers will not have "no choice".

Therefore, the conversion cost is a decisive factor for measuring dominant position in these emerging industries. However, the conversion cost mainly includes sunk investment provided by one trading party in traditional industries, for instance, the cost of purchasing equipment under the circumstance of above-mentioned "follow-up market". Because of the free nature of security software and instant messaging services, the users have no sunken investment in economy. The main obstacles that prevent it from switching service providers consist of "network effect" and "locked-in effect" revealed in economics research. The so-called network effect refers to the effect obtained by the consumers when using certain product, which will increase with the increase of the number of consumers using this product. However, the term of "lock-in effect" proposed by Brian W. Arthur refers to the developed technology earlier can be locked from the aspect of predictability, efficiency, flexibility and convenience by virtue

of its advantage of entering the market earlier. Consequently, virtuous circle of increasing returns can be realized, to win the competition. Combining with the principle of anti-monopoly law, the complicated appearances can be revealed, it can be found that the essence of these two effects are the special causes of conversion cost. Actually, these two effects have been occurred in traditional industry, the above "follow-up product" often has lock-in effect in the market, while these two effects are especially outstanding in software and the internet industry. Meanwhile, it will become the regular sources of power for producing and maintaining dominant position.

3) Invalid Identification of "Turnover" Standard on Centralized Potential Risks of Internet Enterprises' Operators

The turnover is deemed as the standard of the application in centralized reporting and review system of operators in our country, the market shares and corresponding market control are regarded as the primary consideration in substantive review stage. According to the financial calculation, turnover should be determined first and then the market shares can be calculated, the former is the fundamental basis of the latter. "Turnover-related market definition-market shares" are important reference system for controlling enterprise concentration to a certain degree in the centralized reporting and review system. Expectably, regarding turnover as standard of the application can identify potential and banned concentrations within minimum range. Therefore, the existing reporting standards can be understood as a pre-review standard with inherent relevance to substantive examination. However, this approach has limit in the field of internet:

Market shares cannot increasingly adapt to the new economic demands represented by the internet. Market shares are applicable primarily to judgment on dominant position of traditional enterprise market, which is not the principal factor to affirm dominant position of internet enterprise market. The method of determining market dominant position by market shares ignores charge-free strategy and platform features of internet enterprise, or rapidly changing of technology and intersection & combination of technology and business, or low threshold of internet market entry. Some people hold that "weakening" and "strengthening" factors of the role of market share in the internet domain coexist, applicative market share standard should adopt "mixed model", and its identified factors should be considered synthetically. This show that the comprehensive conclusion on market power of internet enterprises cannot be obtained by market shares. Based on the internal relationship between turnover and market share, only turnover standard cannot validly identify possible concentration that limit competition potentially of internet industry in advance.

IV. CONCLUSION

As the data productivity booms in the era of big data, Internet companies has fought fiercely for it. In order to maintain data competitive advantage, the pioneering Internet companies enforced monopoly mainly in three ways. First, they stifle market access for other operators. Second, they infringe consumers' legitimate rights like self-determination and privacy, mislead them, and reduce the relevance of user search. Third, they decentralize the data to obstruct data sharing, which breaks the rules of competition and hinders the progress of the industry. The new competition on the market has brought challenges to China's anti-monopoly law adjustment. These challenges reside in the identification of relevant markets, the determination of dominance, and the conditions for centralized declaration by operators. The existing anti-monopoly law identification methods and declaration conditions adjustments haven't gone smooth and even failed in the Internet competition.

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