



Analysis of the Current Situation and Mechanism of Big Data Killing on Chinese Internet Platforms

Ziang Wupu^(✉)

School of Aliyun Big Data Applications, Zhuhai College of Science and Technology,
Zhuhai 519000, Guangdong, China
1548123674@qq.com

Abstract. Big data killing refers to the phenomenon that old users and new users are treated differently on the Internet platform. Through case studies, this paper analyzes the current situation and mechanism of big data killing on Chinese Internet platforms. It is concluded that big data killing is not simply the loss of consumers to the rest of the platform, but that consumers accept a high price because of big data killing under the condition of asymmetric information and the budget constraint of the platform. This results in the reduction of the number of products from other competitive markets, thus reducing the utility of consumers and the level of social welfare. The bargaining price based on the big data of the platform is different from the price discrimination of general products. Big data bargaining is more harmful to social welfare than price discrimination of general products. Standardizing platform big data bargaining can improve social welfare.

Keywords: Government · Big data killing · Platforms · Price discrimination · Economy

1 Introduction

There is some academic research on the view of big data killing, and the views of different scholars are inconsistent. From the perspective of the consumer rights and interests protection law, Zou Kailiang and Liu Jiaming believe that big data essentially “kill” operators based on asymmetry trading information, and through the collection and analysis of the customer’s personal data, flow trajectory, purchase habits data. In essence, it is the “first-level price discrimination” realized by operators based on data information analysis technology. It is the reality of “price discrimination” at the economic level, which seriously infringes on consumers’ right to know and the right to fair trading. Sun Shanwei believes that the key to the illegal big data “killing” behavior is not providing consumers with different prices, but using this price difference to take advantage of the trust and habits of “regular customers”, while concealing the price differences with other customers. This kind of behavior is undoubtedly a kind of misleading to consumers, seriously infringing on consumers’ right to know. It should constitute price fraud. Yu Xiyuan and Chen Runze believe that operators use big data technology to charge different

prices to different consumers, which violates the general public's perception of "clearly marked price", and is also an infringement of consumers' right to know. Its essence belongs to a kind of price fraud. Shen Liangliang believes that big data "killing" may lead to first-level price discrimination, but due to the concealment of big data "killing", it is very difficult to prove and cross-examine. This is the difficulty for the existing law to regulate big data "killing". Yang Chengyue and Luo Xianjue believe that enterprises can use big data and algorithm analysis to obtain consumers' retain prices to implement price discrimination, and this ability of differential pricing has nothing to do with whether operators have a dominant market position. Therefore, China's existing legal system may not be able to realize the effective regulation of big data "killing" behavior.

This paper introduces the concept, current situation, conditions, and process of big data killing on Chinese Internet platforms. In addition, a case study of Meituan using big data killing is analyzed. The paper gives a complete and comprehensive description of big data killing and provides some suggestions on its regulation.

2 The Concept of Big Data Killing

Big data "killing" is not unfamiliar to most people in today's society. In China, it is generally believed that it is easier to have acquaintances. Big data killing refers to the phenomenon that old users and new users are treated differently on the Internet platform. The same goods or services are much more expensive to old customers than to new customers. Its essence is the hidden price discrimination carried out by Internet platform operators using big data and algorithms. According to Article 17 of the Anti-monopoly Guidelines of the Anti-Monopoly Commission of the State Council on the Platform Economy issued on February 7, 2021, big data, for the first time, is clearly defined as the abuse of market dominance and the implementation of differential treatment. The killing behavior of Internet platforms is also different from the traditional killing behavior. On the one side, this behavior arises when buyers and sellers trade on the platform. Platform operators act as intermediaries in the transaction process and can also act as agents. On the other side, the killing behavior carried out by Internet platform operators is based on algorithms. The platform relies on users' personal information and transaction records left on the platform to model and analyze personal characteristics such as consumers' habits and spending power, which is incomparable with traditional familiarity-killing behavior.

3 The Current Situation of Big Data Killing

Among the Internet platforms, the platforms that implement excessive big data killing of familiarity include e-commerce platforms such as Taobao, Jingdong, and Pinduoduo, as well as travel platforms such as Ctrip and takeaway ordering platforms such as Meituan. On March 1, 2022, Beijing Consumer Association released the "Survey Results of the 'Killing Familiarity' of Internet Consumption Big Data". The survey results show that 86.91% of respondents believe that they have been "killed" by big data. This shows that big data killing is extremely common on Internet platforms and consumers are deeply harmed because of it. According to the current news media reports and the consumption

experience of surrounding consumers, it can be found that: first, new users pay lower prices than old users, and new users have shopping subsidies; second, users pay more on their phones, for example, customers who use flagship phones pay more than the customers who use old phones; third, members pay higher prices than non-members, fourth, higher prices need to be paid for higher-end residential areas; fifth, the more frequent the search, the higher the price will be paid; sixth, the higher the frequency of purchase orders, the higher the price will be paid; lastly, users like higher prices. Table 1 shows the cases of these seven forms of big data killing on Internet platforms [1].

Table 1. Forms and cases of big data killing on Internet platforms (original).

Patterns of manifestation	Case display
New users pay less than older users	In March 2019, Ctrip user Chen Liren revealed on Weibo that he bought tickets on the Ctrip APP, and the total price was 17,548 yuan. After the first purchase, he was told that the payment had no ticket. After the second purchase, the price became 18,987 yuan, 1,500 yuan higher than the previous price. He then checked on the HNA APP, but the same trip, the same air ticket price was 16,890 yuan.
Members pay even higher prices	Meituan delivery platform has been exposed to kill cooked delivery members, member delivery fee is twice more than non-members, and at the same time, the delivery fee of members of a delivery platform is actually 4 yuan higher than that of non-members.
User phones make more expensive payments at more expensive	In March 2021, Sun Jinyun of Fudan University released the “2020 Taxi software travel status survey report”. According to the report, more than 800 taxis in Beijing, Shanghai, and Shenzhen were investigated and over 50,000 yuan was spent. It is found that iPhone users could only get an average of 2.07 yuan, while non-Apple users such as Android received an average of 4.12 yuan
Positioning higher-end residential areas to pay higher prices	In April 2021, Ms. Wang from Shenzhen placed two orders at a supermarket member store, both for 650 g of beef from a certain brand. However, when the order address is a high-end residential area, the commodity price is 166.4 yuan, and for an ordinary residential area, the price is 128.7 yuan. The price exceeds about 30%.
High search frequency leads to higher prices	A netizen revealed that he was “killed” by the “flying pig” APP. For the air tickets for the same flight from Lima to Buenos Aires, the “flying pig” APP sold him for 3,211 yuan, while other apps sold for 2,500 yuan. In addition, some people revealed that their search of the air ticket price was 2300+, but after the actual order, it became 2900+. In addition, some people find that for the same hotel, the room and time prices can vary just because they use Alipay more frequently.

(continued)

Table 1. (continued)

Patterns of manifestation	Case display
High purchase frequency leads to higher prices	The higher the purchase frequency, the higher the price will be when using the Eleme platform to order takeout. It is found that as long as one did not place an order at once in a period of time, the membership fee would decrease from 10 yuan to 2.9 yuan.
Users prefer higher prices	Online tourism operators abuse big data analysis and other technical means to set unfair trading conditions based on tourists' consumption records and tourism preferences, thereby infringing on the legitimate rights and interests of tourists.

4 Conditions of Conducting Big Data Killing

The business goal of most companies is to maximize operating profits and Internet platforms are no exception. The phenomenon of killing familiarity on Internet platforms has various manifestations, but in the final analysis, it is the use of data and algorithms. The platform can “kill” familiar users in seconds if the following conditions must be met [2].

4.1 Well Sticking to Users

Generally speaking, after choosing a platform, merchants and consumers will not easily switch to another platform. For merchants, the conversion of the platform requires paying a deposit again, the accumulation of users needs to repay the cost again, and it takes time to accumulate a reputation [3]. For users, if they withdraw from the Internet platform, there is a certain precipitation cost. For example, when users quit social platforms, they may lose contact with their friends and relative.

4.2 Accurately Depicting the User's Characteristics with Data

The reason why the Internet can “kill” is that the platform records the personal information of users in the transaction process. The platform uses big data and blockchain to depict the characteristics of users and sets different prices for different users. Generally speaking, data comes from several aspects, namely, product or service data of merchants, personal data of consumers, and platform data. The data of a merchant's products or services mainly include the name, price, monthly sales volume, origin, delivery place, production date, shelf life, etc. Personal data of consumers mainly include purchase times, names, telephone numbers, home addresses, payment methods, historical purchase records and so on [4]. The data of the platform mainly includes the data generated during the transaction between merchants and consumers through the platform, such as the conversation in the transaction, the customer comment after the transaction, and the packaging and distribution data provided by the platform. In addition, the Internet platform stores the data in the database, and through the deep integration of the data, it

pushes the relevant commodity information to the users. For example, online shopping platforms such as Alibaba and JD.COM will push product information according to users' historical purchase records, while video platforms such as Tik Tok and Kuaishou will recommend videos according to the content users interested in.

4.3 Unclear Property Rights

Users will generate data in the process of using the Internet platform, including the user's personal basic information data and the user's transaction record data [5]. This part of the raw data belongs to the user. Internet companies will use big data technology to process users' personal information and purchase records, tap their potential economic value, and implement discriminatory pricing for "regular customers". People's Republic of China (PRC) Personal Information Protection Law came into effect on November 1st, 2021, but it only proposed that the platform should not excessively collect personal information, and did not explicitly prohibit the platform from processing and mining the data of consumers' personal transaction records. The property rights of consumers' personal transaction records are not clearly defined in practice, academia and relevant laws and regulations, which makes it possible for the platform to make use of personal transaction records. In addition, during the transaction process, the transaction data will be stored in the database of the platform, and with the intervention of other service providers, such as logistics and courier companies, the data will be continuously transferred out. Moreover, in the process of circulation, the data will be processed many times by different subjects to achieve their respective purposes. The process of data flow is complicated, and the attribution of data also puzzles many experts and scholars. Therefore, it is difficult to define clearly the owner of data asset rights [6].

4.4 Information Asymmetry

First, the information between platform operators and consumers is asymmetry. Based on the big data analysis of users, the platform can implement different pricing for different types of consumers. That is to say, the platform has complete information about its own consumers and its pricing for different consumers for the same commodity, but the consumer's analysis of the platform's user big data and the pricing of the same commodity platform for different consumers are incomplete. Taking Pinduoduo as an example, users must fill in their phone numbers and home addresses when participating in the activities on Pinduoduo platform. It can be said that the platform has obtained a large amount of user data with a small number of cheap goods. Although most users will feel that there is almost no cost, they will inadvertently reveal their personal information to Pinduoduo.

Second, the information among consumers is asymmetry. Because the biggest feature of an e-commerce platform is that it breaks the space constraint of the market, that is, its market target is not measured by the traditional geographical radius. In e-commerce, the consumers of the platform break through geographical boundaries. Consumers may come from the region where the platform belongs, geographically distant regions, or even foreign countries. In other words, the consumers on the platform are geographically dispersed and do not have the "proximity" relationship in the traditional market, so

the consumers on the platform are “unfamiliar”. This makes the platform consumers have no “sharing” of the purchase price information of a certain commodity. Therefore, the purchase price of the same commodity by each consumer is “private” because the information about the price of the same commodity is asymmetric among consumers. This provides a requirement for the platform to kill “regular customers”.

5 Process of Big Data Killing on Platforms

The killing of Internet big data is mainly accomplished through the following stages: consumer data collection, consumer data analysis, and killing by using consumer data [7]. The first is to collect consumer data. The foundation of the Internet is to collect consumer data. The more data assets the platform has, the more profits it can create. At present, there are several ways for the platform to collect consumer data. For instance, the platform operators can collect personal information of users without authorization and then resell users’ personal information. The second is to analyze consumer data. The support of the Internet is that the platform can use big data and blockchain to characterize users and set different prices for different users. In addition, the Internet platform deeply integrates data through high-end technology and pushes relevant product information to consumers. The third is to kill them with consumer data. After collecting and analyzing user data, the platform implements killing behavior according to the specific characteristics of consumers.

6 Case Study of Meituan

6.1 Case Introduction

In July 2020, some users who used Meituan for payment found that Alipay payment was no longer displayed while WeChat payment and other methods were still there. The user has initiated an anti-monopoly lawsuit against the behavior of Meituan. On November 10, 2020, the State Administration of Market Supervision drafted the Anti-monopoly Guide in Platform Economy, which stipulated that data killing may be regarded as a monopoly. On December 14th, 2020, an article exposed the killing behavior of Meituan platform [8]. The delivery fee for membership of Meituan is 4 yuan more expensive than that of non-members. In addition, the price paid on Meituan platform by different users and different mobile phone models is inconsistent, and users with more expensive mobile phones are charged higher prices.

Although the mobile phone positioning deviation is a common phenomenon in the use of mobile phones, the positioning is relatively accurate and there is little deviation. Therefore, the deviation of mobile phone location cache affects the delivery cost, which obviously can not convince everyone. In April 2021, the State Administration of Market Supervision filed an investigation into Meituan. On October 8, 2021, the State Administration of Market Supervision made an administrative punishment decision according to law and ordered Meituan to stop illegal activities.

In this regard, Meituan said that it will take this as a warning and operate according to the law, thereby consciously safeguarding fair competition. However, according to

relevant reports, Meituan platform did not keep its promise. On March 15th, 2022, Meituan was reported to conduct big data killing. The price of the same product on iPhone is higher than that on Android phones. It indicates that Meituan platform defines iPhone users as quality users. Meanwhile, the cost and distribution expenses of becoming a Meituan member are also higher for iPhone users than those for Android phone users.

6.2 Analysis of Big Data Killing on Meituan Platform

The process of big data killing on Meituan platform involves many subjects. This section will look at the big data killing behavior of Meituan from five different angles.

From the Perspective of Users. Meituan platform is a large-scale Internet platform. It often obtains user information under the banner of realizing the basic functions and additional functions of providing products and services to consumers. Since consumers lack the awareness of protecting personal information, it is difficult for them to perceive what information they have provided to the platform when using it. Although it is convenient for users to use the platform, the risks caused by information leakage can sometimes be ignored. For example, when ordering food on “Meituan takeaway”, the platform must obtain the user’s phone numbers and addresses.

From the Perspective of Merchants. The platform of Meituan is not only “killing” users with big data but also pressing merchants. After reporting the big data killing on Meituan platform, users saw a reduction in distribution fees and comments on Meituan platform. To be the best in various commodity lists, stores on Meituan platform have to subsidize more money than their peers. After entering Meituan platform, some merchants choose to give customers discount coupons in order to get more data flow. However, using coupons to purchase will also reduce the profits of merchants. Big data killing on Meituan platform can result in long-term losses for businessmen.

On April 10, 2020, Guangdong Catering Industry Association pointed out that Meituan, which has a market share of 60–90%, set up many unfair trading rules. Generally speaking, the settled businesses are being oppressed by the platform of Meituan. On the one side, enterprises have an adverse selection. Because of information asymmetry, merchants have more product information than users, so users can only judge a product by looking at the comments from other users. In addition, only merchants with high ratings and good reputations can attract more consumers. In this case, merchants have to make rebates through orders. However, the result of this practice is that high-quality businesses lose more profits while those inferior businesses can continue to sell well-received goods [9]. On the other side, enterprises have moral hazards. Suppliers and merchants usually agree on the selling price of products. However, due to the asymmetric information, merchants with abundant funds will issue merchant coupons and discounts on Meituan platform to attract customers while small and medium-sized businesses are paid for their services and the funding platform is not friendly to them.

From the Perspective of the Platform. First, the scope of user information collection is unscientific. Meituan platform excessively collects user information. It monitors the user’s name, work, address and other information through the microphone. Users may

say a word and the platform keeps recommending related products. Then, the platform conducts big data killing according to the user information collected. Second, the use of user information by Meituan platform is unreasonable. After shopping on Meituan platform, other Internet platforms, such as TikTok, Zhihu, and Xiaohongshu, will also recommend related products. This may happen because Meituan shares its database with other platforms or illegally resells the user data.

From the Perspective of Deliverymen. In addition to pressing merchants and users at both ends, Meituan platform also presses third-party cooperation organizations, especially the deliveryman from outsourcing organizations. On September 8th, 2020, People magazine published an article titled “Takeout Deliverymen, Stuck in the System”, which mentioned that the average delivery time of a take-out order in China in 2019 was about 10 min less than that of three years ago. It can be seen that the platform of Meituan is constantly squeezing deliverymen for its own benefits, and deliverymen are risking their lives to speed up food delivery in order to meet the requirements of Meituan. Based on the above analysis, it can be concluded that deliverymen from third-party outsourcing organizations, merchants intending to get more traffic data and high scores, as well as consumers “killed” by big data on Meituan platform are all under the pressure of Meituan algorithm system.

From the Perspective of the Government. At present, the relevant government supervision is insufficient. The original intention of Internet platforms to develop big data technology is good, but it is illegal for platform operators to “kill” consumers with big data. The phenomenon of the platform applying big data killing to consumers is common, which undoubtedly exposes the lack of supervision and inadequacy of relevant government departments. Especially in the face of the current rapid change of big data technology and the continuous innovation of the platform operation mode, the government regulatory authorities lack the corresponding regulatory means, such as the lack of advanced equipment, advanced technology and professional big data technical talents. Regulators can take extreme measures to prohibit platforms from collecting and using user information. However, today’s data has become an important factor of production, this approach will make it difficult for platform enterprises to do anything, which is obviously not in line with reality.

6.3 Case Revelation

Meituan platform, as a unique takeout platform, occupies a huge share of the whole takeout market. According to statistics, in the first quarter of 2020, the market share of Meituan takeout was 67.3% and that of Eleme was 26.9%. The status of the two platforms is self-evident. A majority of the consumers who used Eleme in the past later moved to the Meituan platform for consumption [10].

Meituan platform stands out from many Internet platforms. It is because Meituan takes good use of data to continuously expand its horizontal business and vertical business. The data traffic business is led to those platforms with less data traffic, thereby forming a crisscross industry network. For instance, users from the takeaway business

can be led to the hotel business. Meituan was founded later than Eleme, but it managed to catch up from behind, which is inseparable from the support of Tencent, a large platform with great data traffic. The more the data traffic, the more the platform “kills”, and the greater the profit. Following today’s development trend, Meituan platform will certainly make it difficult for Eleme platform and might turn the food delivery industry into a complete monopoly industry.

Although Meituan’s big data killing behavior has increased its profits, it has a certain negative impact on both merchants and consumers settled on the platform and deliverymen from third-party outsourcing companies. Inadequate government regulation has damaged consumer welfare, squeezed business profits, and increased the safety risks of deliverymen. In general, big data killing increases social transaction costs and reduces social welfare, so it needs to be regulated.

7 Conclusion

As an emerging hot issue in recent years, the “big data killing” behavior of the Internet platform has attracted heated discussion from all walks of life. Making good use of big data technology is conducive to promoting the development of the platform economy. Many Internet platforms recognize that big data and algorithmic technologies are the key to earning excess profits and occupying the advantage of market competition. Although the application of technology provides great convenience to people, it also causes a series of social problems. The platform applies big data and algorithm technology to the pricing field of goods and services. By accurately depicting the portrait of consumers, the demand curve of each consumer is depicted and the consumption surplus is estimated, so as to achieve tailored pricing for each consumer and earn excess profits. The abuse of the algorithm damages consumer welfare and is prone to market failure. Therefore, the big data killing behavior should be regulated. Based on the perspective of economics, on the basis of introducing the current situation and conditions of big data killing on China’s Internet platform, the following conclusions can be drawn.

First, big data killing is not simply a loss of consumers but also a reduction in the number of products from other competitive platforms under budget constraints and information asymmetry. This reduces the utility of consumers and the level of social welfare. Big data killing on the platform is different from the price discrimination of general products. Compared to the price discrimination of general products, big data killing causes more damage to social welfare. In other words, regulating big data killing on the platform can improve social welfare.

Second, the case study of Meituan found that the big data killing behavior of Internet platform enterprises is closely related to merchants, users, and the government, which requires the joint efforts of various parties. Users should strengthen their own awareness of information protection, and the government should strengthen its supervision.

References

1. Jiao, H.T. Anti-monopoly law analysis of the “two alternative” behavior [J]. *Financial Law* (05), 78–92+117 (2018).

2. Dong, W.G., Lin X. Competitive effect of exclusive transactions in the B2C market in China [J]. *Industrial Economic Review* 17 (02), 18–37 (2018).
3. Cheng, Z.W. Abuse of autonomous Algorithms in platform economy [J]. *Southern Finance* (10), 87–96 (2021).
4. Zhou, X. Analyze data hegemony and platform hegemony from the perspective of platform economy [J]. *Global Media Journal* 8(04), 19–34 (2021).
5. Yang, W.M. Monopoly Agreement Regulation in the Algorithm Era: Challenges and Countermeasures [J]. *Comparative method study* (01), 187–200 (2022).
6. Lei, L.C., Chen, R.X. How to break the big data “killing”? Evolutionary game based on government-consumer collaborative regulation [J]. *System Management Journal* (04), 664–675 (2021).
7. Su, M., Xia, J.C. The Governance dilemma of Competitive Monopoly and Algorithm collusion in the Digital Economy [J]. *Research on Financial issues* (11), 37–46 (2021).
8. Hu, Y.C., Feng, Y.F. Exploration on the protection of consumer Fair Trading right in big Data killing [J]. *Journal of Shaanxi Normal University (Philosophy and Social Sciences edition)* (01), 161–176 (2022).
9. Han, W. Algorithm collusion antitrust preliminary—OECD Algorithm and Algorithm Report review review. *Research on competition policy* (05), 112–121 (2017).
10. Wang, X.Y. Some thoughts on the revision of the Anti-monopoly Law in China [J]. *Social Science Abstract* (05), 73–75 (2020).

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter’s Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter’s Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

