

# ***Big Data-enabled Price Discrimination in China: Tmall, Ctrip and Meituan***

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**Abstract:** In the era of rapid development of science and technology, big data has been used more frequently in order to make daily life more convenient and faster, and the big data-enabled price discrimination has gradually surfaced. This study is committed to studying the impact of big data on people and solutions through case analysis. This study found that more than 80% of consumers believe that big data has become very common in all areas of life. This study elaborated on big data killing and its causes, analyzed the frequent phenomenon of big data-enabled price discrimination on online shopping platforms, online travel platforms and delivery platforms in detail, and found many common points, such as membership system and consumption preference. The purpose of this study is to try to find the blind spots and propose solutions by analyzing the above cases. This study suggests that consumers should pay more attention to their rights and interests and improve their positive attitude towards safeguarding their rights. Enterprises can restructure the internal discipline, clarify the relevant laws and regulations; The government can improve relevant laws and regulations and revise some ambiguous definitions to strengthen law enforcement.

**Keywords:** big data-enabled price discrimination, platforms, consumers, consumption preference

## **1. Introduction**

Nowadays, digitization has penetrated into every corner of life, which brings convenience and efficiency to human beings, but also brings a lot of negative effects. Big data enables people to get information faster and helps them organize the present and plan for the future. But at the same time, it also infringes the rights and interests of many people, and suffers from the disclosure of privacy.

Big data-enabled price discrimination is in the use of big data to kill acquaintances this behavior. Through the data collected from the Internet, such as users' basic information, consumption preference and consumption power, the maximum price that consumers may deal with is automatically generated to obtain more profits. This is a commercial marketing method that discriminates against users in terms of price, and the transaction price of old customers is often higher than that of new customers.

The term started appearing in China in 2018, but has already appeared in other countries in 2017. Canadian news outlet CBC news first reported that consumers opened two different browsers to

book hotels, but there was a price difference. Since then, more and more consumers have noticed similar cases, and the incidents have become more and more publicized. Domestic consumers, then, often find similar situations [1].

Big data-enabled price discrimination in online shopping, online travel, take-out, take-out consumption, taxi, ticketing, video and other platforms, penetrating into all aspects of life.

On the surface, big data killing is the platform's use of algorithms to gain the maximum benefits from consumers, but in fact, it is the platform's excessive collection of consumers' personal information and privacy violation, suspected of violation of laws and regulations [2]. However, the profit-seeking attitude of the merchants and some of them refuse to apologize will lead to a crisis of trust of the consumers towards the enterprises involved, which will seriously affect the efficiency of the market economy, lead to the waste of social resources, and may even affect the Internet economy and the development of China [3].

Over the past five years, the government has introduced a number of new laws and regulations to deal with potentially illegal activities involving big data, but the practice still exists and has not been eradicated. Therefore, this study aims to deeply analyze the case to find the blind spots, and put forward solutions from two aspects to solve the phenomenon of big data killing. The government needs to guide businesses properly, regulate more efficiently, and complement relevant laws and regulations. Only by standing in the position of consumers to protect the rights and interests of consumers can we maintain the stability and development of Internet economy.

This study will first analyze the generation and causes of big data-enabled price discrimination, then analyze common cases and find common ground and loopholes, and finally put forward the possible direction to solve the problem of big data-enabled price discrimination.

## **2. Generation and Causes of Big Data-enabled Price discrimination**

### **2.1. Concepts of Big Data-enabled Price Discrimination**

Understood in economics, there are many forms of price discrimination when a company sells two similar products with the same marginal cost at different prices. Including: different consumers buy the same goods at different prices; Make the marginal price depend on the number of units purchased, but also on whether they are bundled or not; Introductory offer, initial purchase, etc.

Big data-enabled price discrimination: China's law has not made a clear definition of the concept of big data kill familiarity, but there are many different explanations in the academic world. 1. Price discrimination is caused by different prices for different users after the user portrait is painted by the algorithm [4]. 2. It is a kind of infringement. Merchants seek higher profits [5]. 3. Merchants collect consumers' personal information to calculate consumption preferences, and then differentiated pricing algorithms [6]. In a word, there are differences in pricing prices, and big data technology is used to gain more transactions and profits. And big data is a phenomenon of price discrimination [7]. And big data is not only targeted at regular customers, but also those who are not sensitive to price.

### **2.2. Generation of Big Data-enabled Price Discrimination**

Both price discrimination and big data-enabled price discrimination are the product of privacy disclosure. The disclosure of privacy comes from the contempt of consumers, the greed of merchants and the lack of policies.

Platforms often require users to agree to lengthy "user agreements" and "privacy policies" to allow consumers to use the platform. Consumers don't want to, or have the time to, read these long terms, and they are forced by the need to use the platform to allow it to collect their private information. As a result, users have no way of knowing what information about themselves is being

collected and when, or whether their information is being disseminated or used for illegal projects. And platforms are more of a one-way output, where what consumers put in is invisible, as if it is hidden in a box but it is not known whether there is a secret operation to exchange or buy this information. In addition, the price difference of similar platforms is not big, so consumers will not pay attention to them and can choose, and the range of comparison is small. Consumers can only judge products based on the information given by the platform, which also has information asymmetry, making it difficult for consumers to find "price discrimination" or "big data-enabled price discrimination" [8].

According to the survey, more than 70% of the respondents think that the big data-enabled price discrimination is used for more economic benefits, less than 20% of the respondents think that big data differential push is to recommend suitable goods or services to users, and very few (5.89%) of the respondents think that enterprises use big data differential push is to save the time and cost for users to choose [9]. Although some people explain for platforms, in fact most platforms are for profit.

It is also difficult for governments to regulate. Different types of platforms and different operating models require different regulatory approaches. In a short period of time, it is difficult to establish a complete and comprehensive regulatory system, so that the relevant regulatory departments can perform their duties [8]. Responsibility and rights as well as efficiency are big problems, so although the Chinese government has introduced E-commerce law, it is still in the exploratory stage in dealing with this problem [1].

Therefore, the results of this study can be summarized and used in three aspects: consumers, platforms and governments to further solve this problem.

### 3. Case Analysis

#### 3.1. Online Shopping Platforms: Tmall

Online shopping has almost become an inseparable part of life, it brings great convenience to people's life, people can buy almost everything on the Internet: clothes, daily consumption goods, electronic products, medicine and so on. A survey released in Beijing showed that 82.44 percent of respondents had encountered large data during online shopping [10]. But in such a market share of such a common online shopping platform has also happened many times to big data-enabled price discrimination events.

For the same item, there will be price differences. In April 2020, the competition of "10 billion of subsidy activities" activities on various e-commerce platforms is fierce. Many consumers find that the price of the same item is not the same when ordering from the activity portal on the homepage of the Taobao Tmall App and ordering from other portals, and the difference is almost 15% of the original price. Even a consumer found that there was a gap in buying the same cheap cleanser on the same platform. The lowest price she learned was 14.03 yuan, while the price for her and another consumer who had opened a membership was 24.9 yuan and 21.9 yuan respectively [11]. After it was posted online at this time, other consumers offered more and different prices. In response to consumers' questions, the platform says it offers special deals to new users, who get different coupons, but that doesn't quite explain the variety of prices. In addition, for some products within 100-yuan, VIP users even need to pay 10-20 yuan more to get the same products [11]. In addition, after many consumers browse some products in some short video software, Taobao Tmall will push the products they browsed before on the home page when consumers open the software next time, with expensive price. Platforms get consumers' consumption preferences through the information transmitted by other platforms, and set the price at a higher value acceptable to

consumers for successful sale and more profits, which is also a kind of price discrimination through information transmission.

Many industry insiders say that such big data-enabled price discrimination is already the usual means of mainstream e-commerce platforms. The platform also always uses "10 billion of subsidy activities", "new users", "coupons" and other ways to defend, hiding their behaviors of using big data-enabled price discrimination behavior, so that their boundaries become blurred. This behavior has caused a lot of consumers to tease and boycott, but some consumers think such things happen too often has been unable to correct, and give up to protect their rights and interests. Moreover, due to the imperfection of laws, commodity prices are not high enough to be involved in laws, and consumers do not understand relevant laws and regulations, it is difficult for consumers to protect their rights only by relying on complaints on the platform.

### 3.2. Online Tourism Platform - Ctrip

Online tourism means that consumers book tourism products or services from tourism service providers through the Internet and pay online or offline. Compared with its more extensive transmission of line information, interactive communication is more convenient for consumers to consult and order. Ctrip, as the most outstanding online travel platform, has attracted a large number of customers due to consumer habits, sex prices and comprehensive booking services (low substitutability), with the largest market share of 36% in 2023 [12]. But despite such an excellent platform, it is still associated with such controversial words as "big data-enabled price discrimination".

A star publicly pointed out on the social media platform that Ctrip does whatever it takes to make money, which aroused the resonance of many consumers and their dissatisfaction with Ctrip, which also pushed the controversy of big data to the climax of public opinion once again. In July 2021, Ms Hu sued Ctrip because as a member, she should have the right to book at a lower price, but found that she paid 2,889 yuan more than the actual listing price of 1,377.63 yuan with a premium of over 100%. Ms Hu communicated with Ctrip, Ctrip only refunded part of the price difference. Ms Hu believes Ctrip collected other information and used big data-enabled price discrimination. Although the final judgment is: Ctrip does not constitute "big data-enabled price discrimination", but is a fraud to consumers [13]. For this judgment, most consumers believe that it is only the definition of big data-enabled price discrimination that is not clear enough, so it is difficult to find accurate evidence, which led to the failure of Ms. Hu's lawsuit and gave these platforms an opportunity to take advantage of. This is because the platform collects unnecessary information from consumers to analyze consumers' consumption preferences and pushes relevant and high-priced hotels through consumers' schedules to cause price discrimination. In this case, the platforms are discriminating against both members and non-members based on consumers' preference and frequency of ordering, which is almost a form of outright price discrimination.

According to a survey released in Beijing, 76.85% of the respondents have encountered too much data in online travel consumption [10]. In similar cases, after discovering price discrimination, consumers can only get the difference or small additional compensation through multiple conversations with customers and complaints or even lawsuits. Moreover, these prices vary greatly, up to several thousand yuan. It is precisely because the consumption base of online travel platforms is not small, consumers pay more attention to and the possibility of rights protection is greater. The relatively successful case has also encouraged consumers to make more comparisons and more checks when making reservations, and to be more courageous in defending their rights and interests. This also allows the deep hidden big data-enabled price discrimination to further emerge in the vision of consumers.

### 3.3. Modern Delivery Platforms: Meituan Takeout

The emergence of modern delivery platforms began in 2012, while now household names like ELEME Takeout and Meituan officially started in 2013 and have been in the market ever since. The number of users has increased from 0.8 million in 2012 to 469 million in June 2021. Food and beverage and daily necessities are included in the contents of takeout, and the range of delivery products is getting wider and wider, and it is also gradually associated with online shopping platforms. Takeout has gradually become an indispensable part of modern life. But it is because of its low substitutability that people have few platforms to choose from, which gives them the opportunity to use big data-enabled price discrimination. According to a survey released in Beijing, 66.96% of the respondents encountered too much data when using delivery platforms [10].

Meituan Takeout is one of the only two delivery platforms with a near-monopoly, with 41 percent of users. If you don't have memberships, the discount will be reduced if you use the software for a long time. However, some consumers find that even if they buy members, the delivery fees and product fees in the platform are the same or even higher than those without purchase. In December 2020, a blogger published an article on his official account explaining that his delivery fee had increased by 4 yuan after he became a member of Meituan. In addition, several media have tested that on Meituan's delivery platform, different mobile phone users with different accounts have different delivery fees, and even old customers pay more than new customers. There is a software named Black Cat which is specially designed to deal with these complaints and is famous for its efficiency. The app is full of consumers' complaints about Meituan. According to the relevant data, only one keyword was entered in 2018, and the number of keywords "Kill acquaintances" and "Meituan" reached 55 in 2020. Meituan claimed that it is due to a mistake in positioning and has nothing to do with whether to join membership, but consumers did not believe it. The same is true of its rival, EKEME Takeout.

The difference of big data on the delivery platform may only be no more than 10 yuan, the loss for consumers is not big. However, because the price difference is small, it is more difficult for consumers to defend their rights, and the loss for consumers will add up after multiple takeout orders. In addition, such behavior cannot be directly complained on the Meituan platform, but needs to use the Black Cat app, find the relevant regulatory department or dial 12315 to complain, which is very troublesome for consumers, and it is likely that they will not spend the time and energy to complain because the amount of money is not big. The frequency of big data-enabled price discrimination is a common occurrence for consumers. Although they are very dissatisfied, they have no choice but to compare their orders and be more careful due to the cumbersome complaint procedures and the almost monopolistic two delivery platforms.

### 3.4. Case Conclusion

To sum up, in all three cases, there are different degrees of pricing based on consumer characteristics - big data-enabled price discrimination - in different areas of life, and this is likely to depend on the price base of the products sold. The phenomenon of big data-enabled price discrimination maturing may have appeared long ago, but since 2018, consumers have gradually awakened their awareness of protecting their rights and interests and paid more attention to these phenomena. Therefore, more and more cases of big data-enabled price discrimination on network platforms have been reported, which is still on the rise. There are only several ways for consumers to report the phenomenon: 1. The platform itself: However, it requires multiple communications, evidence and arguments, which may not be successful. 2. Black Cat app, etc.: It is more like a third party to intervene in our transaction, which requires more steps, takes a lot of time and energy, but has a higher probability of success. These things have been paid more and more attention by



consumers, but because the law has not clearly defined the big data-enabled price discrimination, and the relevant punishment also needs to be improved, leading to many cases did not well safeguard the rights and interests of consumers but let the platform exploited an advantage. Consumers will have to be more cautious, which is the opposite of the trust that merchants and consumers have placed on them in the first place. And the most aggrieved thing is that, despite all the criticism, these platforms still use big data-enabled price discrimination, only to come back some time after things have been out of control and required to make a stern statement. And also, some merchants who have entered the platform had received loss because of it. And the behavior of big data-enabled price discrimination not only damages the interests of these people but also the interests of competitors and the whole market. Such behaviors exclude equally efficient competitors in the market, which can affect the overall competitive order and even the entire Internet economy. Therefore, it is urgent for both victims and governments to clearly define and improve laws and regulations.

## **4. Countermeasures**

### **4.1. Consumer Circumvention Measures**

Consumers should attach importance to their own interests and rights and interests and actively safeguard their rights and interests. Adjust your attitude actively and do not allow the platform to infringe your rights and interests just because you are too lazy to complain or the amount is not much.

Pay more attention to similar events and give them heat. Because a consumer complaint to a platform maybe like the egg strikes the stone, but everyone actively resists, the platform will be more scruple. Consumers can compare the products of multiple merchants and platforms, especially the products with high prices. They can also find out whether the platform and merchants who are expected to buy have such precedents and their favorable rating.

Consumers can learn more about relevant knowledge and laws, and protect their own rights and interests through these means when necessary, and punish the platform, which can also help consumers in the same situation.

After the rights and interests of consumers are infringed, they should first contact the merchants and negotiate. If no result is reached, they can defend their rights through the platform and Black Cat APP. If they still fail to get the compensation, they can dial 12315 or contact the regulatory authorities, or even file a lawsuit.

### **4.2. Government Regulatory Strategy**

**Strengthen publicity:** The government should first strengthen the publicity of relevant laws and regulations and relevant cases, and popularize popular knowledge to consumers about how to save the infringed rights and interests and how to provide help. For example, contribute to short video platforms or newspapers to raise awareness of these events and demonstrate solutions to properly guide consumers.

**Set up reward and punishment measures:** The government can set up a mechanism to allow different businesses or platforms to report to each other with evidences, and after verification, severely punish the accused, fine them and order them to rectify and compensate the victims. In addition, the case should be open and transparent, publicizing the bad enterprises to act as an example to others, and the whistleblower can be praised and rewarded.

**Standardize the use of big data:** It requires the government to help companies sort out the right business philosophy. Big data can be used to provide consumers with better services more conveniently and quickly, and establish a more friendly relationship. The government should

strictly check the privacy provisions of the platform to ensure that no unnecessary information is collected or even stolen by the platform, and it should not arbitrarily dispose of consumers' information data for interests or even use it to lure consumers. The best way is to let the platform publish the algorithm, make clear the relationship between the transaction price and the transaction conditions to avoid big data hidden in it, and let the platform, the government and the society jointly supervise whether there is big data-enabled price discrimination or staff covering up for each other for interests. At the same time, consumers and media also need to pay more attention to the platform's announcement on the use of big data to remind and safeguard their rights and interests.

The government needs to establish and improve relevant laws and regulations. First of all, the degree of big data use will be legalized, which will require platforms or companies to include the publication of big data algorithms into the law. Secondly, relevant laws and regulations are improved. Some provisions are applicable to big data. For example, according to Article 12 of the Anti-monopoly Guide, "Operators with dominant market position shall not engage in the abuse of dominant market position prohibited by the relevant provisions of the anti-monopoly law." For the first time, the Antitrust guidelines explicitly define "big data-enabled price discrimination" as abuse of dominant market position and discrimination [14]. The definition of market dominance should also be changed to reduce its proportion of the definition [15]. For example, Meituan may not have a 50% share, but it may have a dominant market position. And as soon as possible to improve the definition of big data-enabled price discrimination.

## 5. Conclusion

To sum up, in order to solve this problem, efforts need to be made in three parties. Consumers need to pay more attention to their own interests and the understanding of relevant laws and regulations. Enterprises need to pay more attention to the long-term development of the Internet economy, accelerate disillusionment, abide by the law. The government needs to step up publicity efforts to make more consumers understand and pay attention to big data-enabled price discrimination. The government also needs to speed up efforts to improve laws and regulations and make efforts to enforce them more efficiently.

Big data-enabled price discrimination is a relatively new China need to overcome the difficulties. With the awakening of consumers' awareness of rights protection, the changes in the eyes of businesses seeking profits from near to far and the empathy of consumers, as well as the government's repeated efforts to solve problems, modify and improve relevant laws and regulations, the stubborn phenomenon of big data-enabled price discrimination has been gradually dismantled. However, it has not been completely solved. There are still some platforms that use big data-enabled price discrimination to damage the rights and interests of consumers, disturb the order and affect the Internet economy. This study aims to summarize the existing situation and propose some ways to solve the problem.

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