

Analysis of monopoly crisis in Internet Economy -- Based on market equilibrium model

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Abstract: *With the development of science and technology, the era of Internet economy is coming. The market structure of each segment of the Internet industry presents the characteristics of platform monopoly. This paper uses marginal analysis and game theory as the main analysis tools to make a comparative analysis of the Internet oligopoly market and the fully competitive market, focusing on the impact of platform monopoly on social welfare. At the same time, according to the analysis, it reconstructs the Countermeasures of anti-monopoly law, enterprise self-examination and price regulation.*

Keywords: *Internet economy, oligarchy Market, Market equilibrium*

1. Introduction

In the era of digital economy, with the explosive growth of Internet economy represented by search engines, social networking sites and e-commerce platforms, Chinese and foreign giants such as Google, Facebook, Tencent and Ali quickly dominate the Internet world, and the arc of monopoly covers the Internet platform.

At present, it is very important to systematically construct the Internet platform monopoly law and economics model, clarify its specific challenges to the anti-monopoly law in the era of industrial economy, and explore the optimal path of China's anti-monopoly law system reconstruction.

2. Definition of concept

1) Internet economy

Internet economy is the economic activity and economic phenomenon in the era of information network. It mainly refers to the core subjects such as Internet platform, traditional manufacturers and network users. The Internet is the sum of economic activities such as information and product production, transaction and consumption.

2) Oligarchy Market

The emergence of large Internet platform enterprises leads to the high concentration of market structure in some fields. This part starts with the actual measurement of market concentration in various fields of Internet platform market, combing the typical facts of the industry. The Herfindahl Hirschman index (HHI) is a common index to determine the concentration of the market, and is a common method in determining the market structure. The closer the index is to 1, the more uneven the size distribution of the enterprise is; When the index is 1, it indicates that the market is in full monopoly. The calculation formula is as follows:

$$HHI = \sum_{i=1}^n (X_i/X)^2 = \sum_{i=1}^n S_i^2$$

In the above formula, X_i is the scale of the i enterprise, X is the total market scale, and S_i is the market share of the i enterprise. The index can not only reflect the market share of large enterprises in the market, but also explain the market structure outside large enterprises.

3. Analysis of market equilibrium model

3.1 Basic assumptions

In terms of supply, due to the free access of Internet market, the platform is completely free to compete. Because of the information is non exclusive, non competitive and severe excess, the platform marginal output MP increases, thus it is concluded that the total output TP curve is increasing steeply, and the distance from the vertical point of any point of TP curve to the intersection of its tangent line and the horizontal axis is less than the distance to the coordinate origin, Therefore, MP is always higher than the average production AP curve. Because MP and marginal cost MC curve are opposite, AP and average cost AC curve are opposite, MC and AC curve are all decreased and MC is always lower than AC curve, $MC' < 0$. According to the economic significance, $AC = TC / Q$ (TC is the increasing number), and the distance product P Q of the distance product from AC curve to X axis and Y axis increases continuously when the AC curve extends to the right.

In terms of demand, manufacturers can compete freely. In order to complete the transaction with all consumers, information transactions must be conducted through the Internet, while users "free" take information and utility curve back and forth, see Figure 1. If the total number of Internet users is fixed in the short term and no multi users belong to, then the platform demand curve $d = \text{average income } AR = \text{marginal income } MR$, D is vertical at the total number of users Q and MR' does not exist. If the demand curve of the manufacturer is set to be $p = P'$, PI is the price of the platform information transaction service used, the total profit of the platform will be $\pi = (PI - AC) \cdot Q$, total profit of manufacturer $\pi' = (P' - PI) \cdot Q$.

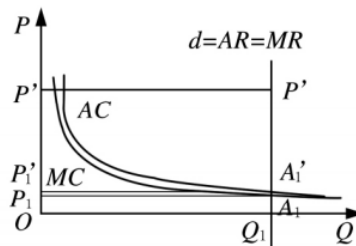


Figure 1 Completing the transaction with all consumers

3.2 Model analysis

1) Oligopoly market

After the official opening of the oligopoly market, the Internet platform pricing method was rapidly updated. At this time, because the platform is the only one and the manufacturer has no choice, the giant will inevitably ask for profit maximization $\pi = TR - TC = (P - AC) \cdot Q$. Because $MR' < MC'$ is still not established, it is not necessary to obey $MR = MC$. Because Q and AC are determined, the giant turns P-value maximization into its new profit maximization criterion, see Figure 2. However, after the monopoly of the Internet market, other platforms can still freely enter, and the giant's pricing must be less than or equal to the second largest platform. It can be inferred that the Internet giant will allow the (2 ~ n) platform to join the oligopoly game and take over the derivative business with market capacity of $(Q_2 + \dots + Q_n)$, and the pricing of the top (n-1) platform will be consistent with that of the nth platform P_n .

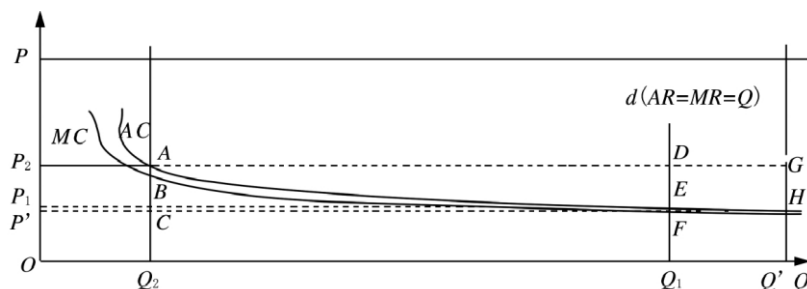


Figure 2 The giant turns P-value maximization into its new profit maximization criterion

2) Perfect competitive market

Under the above assumptions, perfect competes in the market with 3 Internet platforms, 1 manufacturer and Q ' 3 users. The number of users of each platform is determined by their technical level and channel viscosity. In short term equilibrium, since $MR < MC$ ' is not established, the Internet platform is not constrained by the traditional profit maximization criterion $MR = MC$, and the independent pricing right is obtained, while the manufacturer freely chooses the platform according to its quotation. In the long-term equilibrium, with the actual information fee paid by a single user from P_1, P_2, P_3 , etc., the total cost of information services in the whole society will be reduced from $P_1 Q_1 + P_2 Q_2 + P_3 Q_3$ to $P'3 (Q_1 + Q_2 + Q_3)$.

In a word, platform monopoly in the fully competitive market brings efficiency, fairness, social welfare and economic growth maximization on the basis of damaging the interests of small and medium-sized platforms and low demand price elasticity industries, see Figure 3.

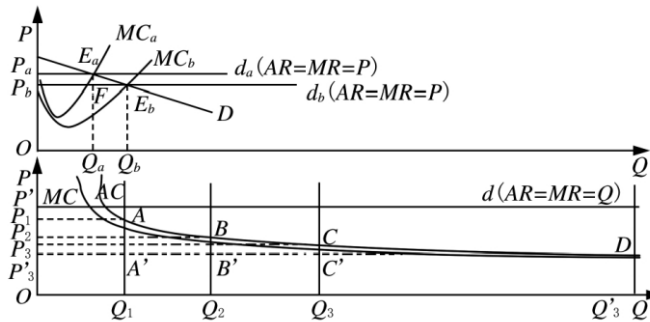


Figure 3 The number of users determined by their technical level and channel viscosity

3) Comparative analysis

Perfect competition market usually refers to that there are many production and sales enterprises in an industry. They all provide the same kind of standardized product market to the market in the same way. No matter the product quality, performance, shape, packaging and other aspects of the difference is not particularly big, no one enterprise can through their own products and other people's products to open a huge price difference to form a monopoly, so as to obtain monopoly profits.

Oligopoly usually refers to a market in which the company's products are unique and the number of competitors is relatively small, and the demand curve of the industry is obviously inelastic. For each competing company, mutual supervision of market prices is the best way for everyone. Even if a company mentions the price of its products, there will not be a big gap in sales volume, and competitors may raise the price.

4. Countermeasures

4.1 Antitrust law

We should strengthen the mixed supervision of platform economy and promote the unification of behavior supervision and function supervision. At the same time, we should strengthen the legislation in the field of big data, fully protect the privacy of consumers, and fully guarantee the sovereignty and security of national big data.

4.2 Enterprise self inspection

The purpose of self-examination and self-examination of Internet enterprises is to solve possible problems as soon as possible through the self-discipline behavior of enterprises, correct the potential loopholes and guard against all kinds of risks that may infringe on the rights and interests of consumers or damage the development of enterprises. For enterprises with strong sense of social responsibility, strengthening self-examination is a necessary measure to effectively correct non-standard behaviors.

4.3 Price control

If we allow oligopoly and perfect the average cost pricing method, we can stabilize the Pareto optimal state for a long time. Protect the interests of consumers and promote the improvement of social

distribution efficiency. Promote natural monopoly industries and improve production and operation efficiency. And Maintaining the development potential of enterprises.

5. Conclusion

Through the above analysis, we can clearly know that monopoly has disadvantages for the Internet industry. Oligopoly market monopolists make the Internet economy deviate from the Pareto optimal state by eroding the real economy and the zero sum game of profit giving network platform, resulting in the total loss of efficiency, fairness, social welfare and economic growth. Therefore, in order to improve this situation, the anti-monopoly law will be imperative.

References

- [1] Su Zhi, Jing Wenjun, sun Baowen, "hierarchical monopolistic competition: Research on market structure characteristics of Internet industry" *management world*, issue 4, 2018
- [2] Zhang Xiao "the challenge of Internet economy to anti monopoly law and system reconstruction -- Based on the economic model of Internet platform monopoly law" *Zhejiang academic journal*, 2021, issue 2
- [3] Zhang Xiao's "monopoly crisis in the" second half "of Internet economy and regulatory Countermeasures -- Based on the dynamic equilibrium model of Internet oligopoly market" *Guizhou Social Sciences*, September 2020
- [4] Liu Jifeng's "legislative mode choice of China's Internet platform anti monopoly system" *Price theory and practice*, 2021 issue 1, 53-59, total 7 pages.
- [5] Zhao Xin's *Theory Weekly of Shenzhen Special Economic Zone Daily*, 2021 issue 2, 11-12