

Theoretical analysis of brand-building of e-commerce platforms

Guan Guanjun*

Brand-building is inevitable for e-commerce platforms, based on the economic theory of heterogeneous perfect competition. By investing heterogeneous factors, such as innovative entities into the platforms, their basic business can achieve a natural monopoly in the market, which constitutes a necessary condition for them to build their brands. E-commerce platforms have invalidated the traditional hypothesis of asset specificity, and its value-added business targets brand-building by selling products of multiple varieties and in small batches.

Keywords: e-commerce platform, brand, monopolistic competition, heterogeneous perfect competition

1. Introduction

The advancement of IT technologies has promoted the rapid development of e-commerce platforms, which have become one of the highlights of China's "new normal" economy. All kinds of e-commerce platforms—from comprehensive ones such as Taobao, Tmall, Jingdong and Yihaodian to vertical ones such as Jumei, Zhaogang and Ctrip; from the ones that facilitate domestic commodity circulation to the ones that provide circulation services for Chinese products in the international market represented by DHgate and AliExpress—have deeply integrated with traditional economy. The in-depth collaboration between e-commerce platforms and traditional economy has offered an approach to transforming Chinese economy and promoting an open economy.

E-commerce platforms are committed to building their own brands. Well-known entrepreneurs such as Jack Ma, Wang Shutong and Liu Qiangdong have been calling for and pushing forward the brand-building of platform economy and e-commerce enterprises. However, theoretical study on the brand-building of e-commerce platforms lags behind the practice. On the one hand, e-commerce platforms have many new features compared to traditional economy. On e-commerce platforms, marginal cost diminishes, marginal revenue increases, and the hypothesis of asset specificity have been invalidated. The current theories about brand-building cannot be applied to address the brand-building problems with e-commerce enterprises. On the other hand, many theories

* Guan Guanjun (email: ggj863@126.com) has a PhD in economics. He is doing post-doctoral research at the College of Business Administration in Capital University of Economics and Business of China. His research mainly focuses on circulation economics, brand economy and transnational e-commerce.

about brand-building including brand asset, brand orientation, brand relationship, brand power, brand touch point and brand ecology are derived from “brand phenomenon” instead of digging into the origin of the precondition and hypotheses of the current mainstream economic theories. Thus, it is necessary to explore the theoretical origin of the valuable research topic “the brand-building of e-commerce enterprises”.

2. Features of e-commerce economy and monopoly caused by innovation

2.1. Features of e-commerce economy

As an increasingly important form of industrial organization in the age of Internet economy, e-commerce has three characteristics that traditional economy represented by the manufacturing industry does not have.

First, the basic platform of e-commerce is separate from its value-added services. The asset specificity of traditional economy contains an implicit premise: the ownership and the right to use enterprise’s capital are combined. As for e-commerce platforms that are established on a new property rights system, the ownership and the right to use enterprise’s capital can be detached from each other. Thanks to the zero cost of replicating intangible assets, the ownership can be shared and the use of the assets will be charged. In this sense, e-commerce enterprises are able to share assets with a variety of enterprises and individuals in the industry, and make profits from them according to the use condition of the assets. More and more e-commerce platforms have divided their products and services into two types: basic platform services and value-added services. Basic platform services are provided free of charge in order to draw customers and increase traffic, and value-added services are offered to make money. The feature of this business model is that it requires high investment at the initial stage, but the marginal investment decreases, while its marginal revenue increases. On a sharing basic platform, value-added services are created to connect every terminal by which profits can be made.

Second, e-commerce platforms are open platforms that connect multiple markets. Every platform has an operator that is responsible for exploring social resources and seeking partners so that they can provide quality products and services to clients. By driving more traffic into platforms and attracting more users, e-commerce platforms can be beneficial to all parties involved so that the value of platforms, clients and services can be maximized. The more partners a platform can draw incorporate, the more valuable it will be. The openness of e-commerce platforms has resulted in reciprocity, putting the platforms into spotlight and increasing their values. Nowadays, many Chinese Internet companies, such as Taobao, Tencent, Jingdong and Baidu, have trodden the path of opening-up. More openness will sharpen these companies’ competitive edge and have a bigger prospect for growth. In order to better serve

customers on these platforms, the integration within and between industries can form a more well-organized value network.

Third, e-commerce platforms can cause network effect and inspire economies of scope. E-commerce platforms serve both sellers and buyers, and the increase of one side can usually boost the other, in which circumstance the network effect will display. The number of sellers and buyers on a platform is in proportion to the value of the platform. Due to the network effect, winning platforms can remain winning and “take all”. In traditional economy, mass production is the manufacture of goods in large quantities using standardized products. The more they produce, the less cost there will be. From an economic perspective, mass production adopts a quantity-price dimension as an analytical tool. However, as people’s annual income increases and life becomes sophisticated, there are a growing demand for all varieties of products. In order to meet the requirement, manufacturers cannot stick with the old way of mass production, but turn to small batch production of multiple varieties of products. In the same technical conditions, the competitive strategies of enterprises can be generalized into two types: high-pricing competition (product differentiation), and low-pricing competition (low costs). In traditional economy, if enterprises choose to manufacture products that are different from those of their competitors, the cost will rise. But with the Internet and IT technologies, all enterprises can coordinate with each other on the e-commerce platforms so that they can produce small-batch, low-cost products of multiple varieties, which will form an economy of scope.

2.2. Analysis of monopoly formed by innovative e-commerce platforms

Out of the features of e-commerce platforms, we can conclude that e-commerce enterprises have hefty trading volumes, broad networking and highly flexible openness. The enormous trading size makes some economists believe that e-commerce platforms are monopolies because in traditional economy, it is widely believed that an economic entity that has a share in a “relevant market” at or above 50% is adequate to constitute monopoly power. Thus, through innovation, differentiation strategy and brand-building, e-commerce platforms are regarded monopolistic. However, whether e-commerce platforms are truly monopolies needs further analysis on the definition of “relevant market” in Antitrust Law and the reasons monopoly forms.

We can draw some insights about “relevant market” from China’s Supreme Court’s decision on the well-known suit between Qihoo 360 and Tencent. How to define “relevant market” determines the outcome. We can define “relevant market” though a hypothetical monopolist test, which shows whether consumers will turn to other alternatives. By introducing parameters such as price, quality, function and ease of acquiring products, and referring to authoritative data, we can find out whether the users would choose other products as an alternative. Meanwhile, we have to put into

consideration supply-side substitutability, i.e. the requirements for other producers to enter the market. The changes of transaction structure on e-commerce platforms can involve more relevant markets than traditional economy. Parties to transactions and rivaling competitors also have more complicated correlations, which have also perplexed the process of defining “relevant market” on e-commerce economy.

Differentiation usually leads to monopoly, but does monopoly always come at the cost of consumers’ benefits? What is “bad monopoly”? The first question is related to an important issue that cannot be circumvented in terms of branding, which is the analysis of monopolistic competition. This paper will conduct an in-depth discussion about it in the next section. The second question is related to the analysis of the reasons for monopoly, which have been answered by some mainstream economists. Lin (2012) believes that there is monopoly in finance, transportation and telecommunications in China, which, during China’s rapid economic growth, is the major cause for China’s serious gap in income distribution. Wu (2013) argues that administrative monopoly is the most notorious type of monopolies in Chinese economy. Jiang (2013) pays keen attention to Internet monopolies. He argues that market structure, according to the Chicago School, is only comprised of three types – complete monopoly, complete competition and monopolistic competition. However, the rise of Internet has deconstructed the conventional market structure and created a new one featuring monopolistic competition, which is a double-layered structure that consists of natural monopoly on basic platforms and perfect competition in terms of value-added services. Fan (2014) says, “The supply of public goods can be monopolistic. It is dangerous to allow this kind of monopoly because state power could be expanded beyond limits. There must be restrictions.” Zhang (2015) offers a critical view about traditional economy, saying the traditional economic paradigms have mixed up the best enterprises produced from market competition and the monopolies growing out of government control. Zhang points out that we cannot regard the enterprises that have fought their way through market competition as monopolies. The real monopoly is created by forceful intervention by government by means of political decision and lawmaking. Zhang (2015) also argues that we cannot return a verdict about monopolistic or not simply from the number of enterprises in a certain industry or the market shares a company owns in the market. We must put into consideration the restrictions imposed by the government. Less control means more competition. If an industry is heavily controlled by the government, even if there are numerous companies, the industry could still be monopolistic. Zhang (2015) believes that “monopoly” needs to be redefined under the current national circumstances. We cannot run against competition under the banner of anti-monopoly. Successful companies will grow larger, acquire more market shares and become “monopolies”.

Therefore, the real target of anti-monopoly is administrative interventions. Monopoly can be “good” if it is formed through diversified competition, brand-

building and all varieties of innovation. If an e-commerce platform, by providing optimal basic platform services and value-added services to the consumers, becomes a monopoly, then it will be a “good” monopoly. The Supreme Court, in the process of the trial between Qihu 360 and Tencent, gave a similar indication, saying “where entry is relatively easy, or the high market share is due to that the business operator is more efficient or provides a better product, or the products outside the market constitute relatively strong competitive constraint to the business operator, a dominant market position cannot be inferred directly from a high market share.”

2.3. Innovation-triggered monopoly will enhance social welfare

In traditional economy, due to the existence of monopolies, decreasing equilibrium quantities and increasing equilibrium prices, there could be a deadweight loss, which can lead to a reduction in overall welfare within a society. The transfer of consumer surplus from consumers to producers can also lead to a reduction in social welfare. However, innovation-triggered monopolies, due to their high internal survival rate, will result in the increase of social welfare because of consumer surplus.

From the perspective of a company, the transfer of consumer price goes in this way: the increase of consumer surplus due to monopoly is reflected on two parts in terms of company revenue. The first part is the addition of taxes, and the second part is the addition of net profits. The first part, after being levied by the government, will be used for social welfare, while the second part will be used as shareholders’ dividends and for expanded reproduction. Thus, the transfer of consumer surplus to producers is a dynamic process. A static perspective will only find the transfer making no difference to social welfare. But a dynamic perspective will find a portion of the consumer surplus being transferred into producers for expanded reproduction, thus social wealth can be deployed in an inter-temporal manner.

The transfer will result in the following changes of social welfare: if all net profits are used for shareholders’ dividends, the overall welfare within a society, on the surface, remains the same after the transfer. But the shareholders are mostly wealthy, and according to the rule of diminishing marginal utility, the increase of utility caused by the rise of dividends will be less of that of ordinary consumers. Therefore, such transfer will result in the loss of social welfare. If the addition of net profits is used for expanded reproduction, the impact of the consumer-surplus-to-producer-surplus transfer on social affair will be decided by whether the labor productivity of monopolies is higher than the average labor productivity of the society. The process of reproduction can be seen as present consumption making place for reproduction so the future consumption can be increased. When the discounted value of future consumption equals the present consumption, the equilibrium emerges. The average discount rate is the discount factor when consumers conduct cross-border consumption.

If the production efficiency of a monopoly is above the average production efficiency, the part that has been transferred from consumer surplus to reproduction, in comparison with the part that remains in consumers, will increase social welfare. If the social welfare wants to be enhanced to a certain degree, it requires more innovation and higher production efficiency of the monopoly. This kind of monopolies depends on innovation, so they cannot be treated as the traditional kind of monopolies that will definitely cause the loss of social welfare.

Highly innovative and efficient monopolies can increase social welfare, unlike traditional monopolies that will inevitably cause the loss of social welfare. These monopolistic e-commerce platforms are very innovative and consequently efficient. Their monopolistic status quo is resulted from natural competition. As monopolies, they have to face constant challenges in the market. Their monopolistic status will draw more resources into their companies, and demand a higher proportion of profits invested in expanded reproduction. Therefore, these monopolies will help optimize the inter-temporal consumer surplus.

3. Analysis of heterogeneous perfect competition in e-commerce platforms' brand-building

3.1. Hypothesis of firm heterogeneity

In classical and traditional economics, "perfect competition", in which all companies sell an identity product, is regarded as universal, while the differentiation caused by brand-building, i.e. monopoly, is treated as a separate case. In the 200 years after Adam Smith when laissez-faire capitalism was at its pinnacle, monopoly is only single occurrence. But when capitalism entered the monopoly stage, the old economic theories couldn't explain the new change, and the spread of monopoly drew keen attention from economists. From the Simonde de Sismondi, John Stuart Mill and John McCulloch in early 19th century, to Alfred Marshall, Antoine Cournot, Francis Edgeworth, Henry Sidgwick, especially Arthur Pigou and Piero Sraffa, in late 19th century and early 20th century, these economists did a great amount of research on monopoly and market incompleteness. However, all of their research and theory-building were conducted within Smith's traditional structure, which regards perfect competition as a common phenomenon while monopoly an anomaly.

Not until mid-1930s when Gary Chamberlain from Harvard University and Joan Robinson from Cambridge University respectively published *Theory of Monopolistic Competition* and *Economics of Imperfect Competition* that Smith's structure came to an end. Their revolutionary contribution is that they have abandoned the long-term hypothesis, represented by neo-classical economists like Marshall, that perfect competition is universal, while monopoly is only an exceptional case. They believe

that perfect competition and perfect monopoly are simply two extremes, and they have come up with a new market model called monopolistic competition that operates between the two extreme scenarios. The two economists have also reformed micro-economics by employing marginal analysis into many aspects such as the cause of formation, conditions for equilibrium and the effect of social welfare, based on which the market structure has been more realistically categorized into four kinds.

In the Internet era, monopolistic competition has become commonplace in market economy, instead of being a separate case of homogeneous competition. Just as Joseph Stiglitz, representative of new Keynesianism and founder of neo-Chamberlin models, pointed out, a key feature of market economy is that there are multiple kinds of products, which, however, have been neglected in neo-classical paradigms. In the theory of monopolistic competition, rivalry means homogeneity, and monopoly is equal to heterogeneity. Thus, monopolistic competition is heterogeneous competition. In order to track the source of the brand-building theory, we have to put the heterogeneity of brands as a precondition for all hypotheses. The basic question in standard economics is the issue of equilibrium between price and quantity. The question is how to optimize the equilibrium. The basic economic question under the hypothesis of heterogeneity is about the equilibrium among product category, quantity and price. The question is how to balance quantity and category with an optimal price. In this case, the category of a product will be its brand.

3.2. Analysis of heterogeneous perfect competition

Under the hypothesis of firm heterogeneity, every enterprise produces different kinds of products, which means their demand curves are different. Thus, when these enterprises try to be heterogeneous and stick with their own demand curves, there will be market-oriented perfect competition. This is heterogeneous perfect competition. The opposite of heterogeneous perfect competition is homogeneous perfect competition, which means producers try to converge their demand curves in order to make their products homogeneous. As Chamberlain said, monopoly will only be possible when there is only one kind of product. The definition of pure monopoly is one or one organization controls the entire supply of all economic products, meaning there are no other competitors other than the monopoly on an established curve of demand (heterogeneous products).

In his book *Theory of Monopolistic Competition*, Chamberlain articulates his logic about heterogeneous perfect competition: he divides cost into production cost and sales cost. The former is nondiscriminatory, and the latter is differentiated. He points out that when every seller has a market, under perfect competition, every seller's market converges with other sellers' market. We have to admit that everyone is more or less separate from each other, so the entire market is not a combination of single markets

that belong to a great many sellers, but a network integrated by affiliated markets. The theory has put monopoly on a prominent position, and monopoly stems from ubiquitously local independence. The logic indicates a replacement of heterogeneous production with heterogeneous sales. After Chamberlain, we have long employed an empirical method, which is the differentiation of sales conditions, to avoid neo-classic economics' ideal situation about non-differentiation, and develop new theories such as addressing economy and spatial economics.

The theory of heterogeneous perfect competition focuses on differentiation, which is the theoretical source for companies to build their brands. This theory has brought in a new measuring dimension—variety—into consideration to display differentiation. This dimension has been ignored by other schools of economists since Marshall. Variety in economics is equivalent to brand in management. Thus, we need to revise the basic economic hypothesis, which is to change many economic questions since Marshall. In 1977, Avinash Dixit and Stiglitz took the first step by proposing the well-known Dixit-Stiglitz model, also known as Chamberlain model. In this model, they argues that the basic question in economics is whether a market can result in ideal quantities and varieties of products. The basic question about standard economics is the equilibrium between bargaining and the amount, which deals with the quantity problem under an optimal price. But the D-S model can change the basic question about economics into a question about how to strike a balance between product variety, quantity and price, which deals with the relationship between quantity and variety under the optimal price. In this case, the homogeneous perfect competition upheld by Smith and Chamberlain has become a particular case, i.e. $N(\text{variety})=1$.

3.3. *Variety-quantity-price equilibrium*

Perfect equilibrium will vanquish brand, and monopolistic competition is heterogeneous perfect competition. Dixit and Stiglitz have deduced the variety-quantity-price equilibrium. The process incorporates 184 formulas. This subsection will elaborate on some key points and the conclusion.

The first step of deducing the equilibrium is to design a utility function as objective function. The utility of the equilibrium is binary, consisting of quantity-related sub-utility and variety-related sub-utility. Different from standard analysis, there is a problem of allocation in terms of variety and quality in the process of deduction, which is how many varieties of products will have how many products. In order to deal with the question, they have introduced a new concept called “abstract variety”, which has turned concrete varieties into a variety axis. On the axis, variety has been abstracted into notches. Expenditure function should be limit to the utility function. The binary expenditure function has divided budget into two kinds—one is budget for quantity, the other is for variety. The production function has met a dramatic change, which shifts from a standard

capital-labor binary production function to homogeneity-heterogeneity production function. The traditional capital-labor ties have been correlated with homogeneous elements. Heterogeneous elements include but are not limited to information, information technology, innovation, entrepreneurship, enterprise culture, cultural capital, heterogeneous labor (including the ability to customize) and advertising.

There is a distinction between the theory of heterogeneous perfect competition and homogeneous perfect competition: when the homogeneous perfect competition market clears off, it implies a homogeneous hypothesis that $N=1$. But in reality, this is not a real clear-off of market, because when $N>1$, the market can also clear off. Therefore, the heterogeneous perfect competition theory is closer to the real world.

3.4. Economies of scope: fixed cost and variety

The above-mentioned three-dimension equilibrium theory offers a new explanation for the development of economies of scope. The new chamberlain model has a basic conclusion for the variety of a product: when the fixed cost is high, variety will be decreased, and the consumption of an individual variety will grow, and vice versa. Therefore, the mass production of an individual variety of product, an embodiment of the industrialized production system, is prominent in manufacturing and Chamberlain's articulation of cost of production. If the fixed cost is high, the increase of varieties will be uneconomical. Economy of scales is essential to the equilibrium of monopolistic competition. By ramping up returns to scale, more fixed cost can be made up in mass production. American industrial organization experts Dennis Carlton and Jeffrey Perloff also believe that the fixed cost can result in lack of varieties.

In the above context, the implied hypothesis for the relationship between fixed cost and product variety is that the fixed cost is special capital and the investors of fixed and variable costs belong to the same property unit. If the fixed cost is zero, there will be infinite number of producers swarming in the industry, and monopolistic competition will be transformed into perfect competition. Under this circumstance, the producers can only compete with each other by variable costs. The scenario is independent from the value-added sections of e-commerce platforms. On e-commerce platforms, the developers of value-added services do not simply invest in fixed costs, but use its variable costs to fulfill their services and produce products. In Internet economy, the fixed cost enterprises have projected respond to many heterogeneous resources including information, knowledge, Internet and innovation. As these resources are invisible, so they can be shared and spread at almost zero cost. In this case, differentiation is still an economical approach. Small-scale peasant economy is not cost effective because it lacks an extensive foundation to share with other investors. Once the limitations on sharing capital are reduced, the extensive spread of heterogeneous capital will greatly facilitate innovation.

4. Conclusion

We can make three conclusions based on the above analysis.

First, the brand-building theory for e-platform platforms stems from Chamberlain and was formed by Dixit and Stiglitz. There are two major directions for the development of brand-building: mass production of a single variety of goods, and small-batch products of multiple varieties. Both directions can make the market clear off.

Second, the basic platforms of e-commerce services can realize natural monopoly by introducing more heterogeneous resources, such as innovation. This has become a necessary condition for the brand-building of e-commerce platforms. Innovation-triggered monopoly can increase social welfare. Basic platform services needs more investments of heterogeneous resources such as innovation and information to extend the scale of business.

Third, the fixed cost, which is invisible investment, can be reproduced at almost zero cost. It has proven unfounded the hypothesis of traditional economy's capital exclusiveness. Therefore, e-commerce platforms should establish close connections with the producers in value-added services, so they can tread the path of brand-building featuring small-batch and multiple-variety sales.

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