Different Development Effect, Policy System and Administration of E-commerce

—Based on the Comparison of the Development of Online Retailing of China and Developed Countries

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Keywords: E-commerce, physical business, on-line retailing, off-line retailing

Abstract: The fast development of e-commerce with the obviously decline of the traditional business not only leads to the hot discussion of e-commerce, but also to the thinking and exploration of the logical mechanism of e-commerce development. Therefore, this paper will demonstrate the relationship between e-commerce and traditional physical business based on the retailing. First, the T correlation analysis method is using to confirm that China’s e-commerce has the negative effect to traditional physical business, ones of developed countries such as the US and Australia has positive effect. Second, the regional difference caused by the supervision system was found by application of new institutional economics. At last, the suggests was given that we should enhance the implementation of e-commerce supervision system and establishing e-commerce taxation system, which aims to change the substitution effect of China’s e-commerce and create a ‘harmonious co-existence’ between e-commerce and traditional physical business.

1. Introduction

In mid 1990s, only scientific and research institutes can reach the use of internet. Nowadays, the e-commerce has become an importance industry of affecting the national economy. With its outstanding advantages in fast pace and convenience, e-commerce has become a necessary part of people’s daily life. According to the statistics of China E-commerce Research Center, the B2C transaction amount of China in 2016 reached 5 trillion and 160 billion RMB with an average annual growth rate of 35.75%. China has become an e-commerce retail market enjoying the fastest global development and the largest population coverage.

However, the fast growth of e-commerce has also come with negative effect, such as the drop of performance of traditional retail business and even bankruptcy. Statistics show that the average growth rate of China’s traditional retail business reached 25.58% from 2008 to 2012 but began to decline in 2013. The growth rate was 18.03% in 2013, and 12.34% in 2014, and only 3.27% in 2015. The remarkable difference of the fast decline of traditional physical business and the fast
development of e-commerce leads people to believe that the e-commerce has damaged the traditional physical business and hindered its development. However, some people believe that the e-commerce has no influence upon the development of traditional physical business, and they are independent and parallel sales modes of even mutual promotion with no need of interference. Then the question is whether the industrial development of e-commerce affects that of traditional physical business. This essay will lay an in-depth analysis and research upon this question to reveal the truth, end the dispute, create a fair competitive environment and promote the continuous development of the whole economy.

2. Document Summarization

At present, there are mainly two academic points of view upon the relationship of e-commerce and physical business. The first point of view is that they are complementary to each other and have mutual promotion, namely the ‘creation effect’. Hernandez et al. [7] pointed out that the e-commerce had no negative effect upon the physical business by showing the number of consumers of shopping in stores is three times the number of online shopping consumers after a survey upon the Canadian consumers and internet information search. Farag et al. [3] pointed out that the online and physical business had mutual promotion in development by showing the direct ratio between the internet information search amount and the times of shopping in physical stores of consumers after a survey upon the Holland consumers. Based on qualitative analysis, Sun Cong [20-21] believed that the e-commerce and physical business could reach a complementary, balanced and prosperous development with organic combination though they were different in sales channels and modes. Li Qiangzhi[12] pointed out that e-commerce integrated with every industry and promoted the development of physical business after his analysis of four development trends of e-commerce such as expansion from city to countryside, from consumption to production, from being domestic to overseas, desktop and mobility[1]. According to the trade substitution effect and creation effect in economics, Feng Ran[6] pointed out that the American e-commerce had promoted the development of traditional retail business based on the facts of traditional physical and online retail sales amount from 1998 to 2015. Through concrete research, Ru Yucong and Li Yan[17] found that e-commerce not only led to the margin growth of the extensive export for Chinese enterprises, but also lowered the occurrence of ‘Productivity Paradox’ for low-efficiency enterprises to some extent.

On the other hand, some believe that e-commerce has brought ‘negative’ effect to the development of physical business, namely the substitution effect of e-commerce to physical business. After a survey upon 1500 online consumers of Singapore, Sim and Koi [19] found that 12% of these consumers dramatically reduced their shopping in physical stores. Based on a survey upon 3074 consumers of Holland, Weltevreden and Rietbergen[24] found that online consumers of reducing the times of shopping in physical stores account for 20%. Hou Meiyu[8] believed the e-commerce took a large market share of physical store and lowered the existence of physical business. Lin Zhenlong[14] believed the negative effect of e-commerce to physical business differed in each industry. Among all industries, the retail business received the most negative impact from the unbalanced competitive environment between the e-commerce and physical business. Feng Ran [5] believed that the market share of Taobao and Alibaba in B2C and B2B market reached 85.18% and 83.90%. This unfair business environment caused by oligopoly led to the unbalanced development of domestic market, and the e-commerce should be effectively supervised to restrict its threat to the economy.

Some scholars believe the e-commerce has both the ‘Creation Effect’ and ‘Substitution Effect’. Based on the theoretical framework of Marx’s Economics, Wang Sibo[23] compared the capital circulation of online sales platform, taxi booking platform, food ordering platform and car rental
platform with their counterparts in physical sales, and found that the online sales platform, taxi booking platform and car rental platform had substitution effect to the physical business but the online food ordering platform had creation effect to the physical business. Those scholars recommend that the online legal construction system should be improved and the frictional cost of e-commerce to physical business should be lowered to better promote their integration. Based on the game theory, Ling Xinru[14] researched on the relationship of e-commerce and physical business and believed that they were not replaced by each other and remained cooperative and balanced in their repeated co-existence.

Why different scholars have different and opposite points of view upon the same question? Obviously, those research documents are based on different conclusions of different scholars on different regions, policy system and data source from different points of view. Therefore, we need to combine those conclusions from different points of view to achieve their successful matching upon one question, picture the complete status of e-commerce and further discuss the pre-condition of drive of the development of e-commerce.

3. The Comparison of E-commerce Development of China, the US and Australia

Based on the research of retail sales, this essay uses ‘on-line’ and ‘off-line’ retail sales amount as two variables to represent e-commerce and physical business, and confirm the effect brought by the e-commerce after analysis of their relationship. I have three reasons for using the retail business data. First, the retail business is an important part of service industry and acts as the leading industry to economic growth[18]. Second, retails business receives the most obvious threat by the e-commerce. Third, statistic bureau of each country has released its own online and offline retail sales figures in pairs.

3.1 Analysis based on descriptive statistics

I make a research on the online and offline retail sales amount of China from the January of 2015 to the October of 2017 (more details in the attached chart). First, drawing a time-series chart (Chart 1) and find that the growth rate of online retail sales amount and offline retail sales amount has inverse relationship. When offline retail sales grow, the online retail sales decline, and vice versa. Therefore, preliminarily it was assumed that online retail sales amount and offline retail sales amount have a relationship of growth and decline and mutual substitution.

![Figure 1 Comparison of Growth Rate of Online and Offline Monthly Retail Business of China (2015.1 to 2017.10 Monthly)](chart)

Unit: One hundred million RMB
Source: Summarization of 34 reports of retail sales growth of social consumption products from

Website in October 2017 is as follows:
http://www.stats.gov.cn/tjsj/zxfb/201711/t20171114_1552981.html

What if another quantitative test to the data of same type but different region is applied, will the same result come out? I continue to draw the chart with the online and offline retail sales amount of the US from the 1st quarter of 2003 to the second quarter of 2017, and also the online and offline retail sales amount of Australia from the October of 2013 to the July of 2017 (more details in the attached chart). The result indicates that the online and offline retail sales growth rate change in the same direction.

Figure 2 Comparison of Changing Tendency of Online and Offline Retail Sales Growth Rate of the USA (2003(1)-2017(2) Quarterly) and Australia (2013.1-2017.7 Monthly)

Unit: One million USD
Data Source:
The online and offline retail sales figures come from the US Census Bureau (www.census.gov), and the resident income figures come from the U.S. Bureau of Economic Analysis (www.bea.gov).
The online retail sales figures of Australia come from the Appendix 1 Experimental Estimates of Online Retail Turnover of Australian Bureau of Statistics.
http://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/8501.0Appendix1Jun%202017?opendocument&tabname=Notes&prodno=8501.0&issue=Jun%202017&num=&view=

The offline retail sales figures come from the Past Releases of Australian Bureau of Statistics.
3.2 Analysis based on T grey correlation degree

In order to confirm my preliminary assumption of the relationship of online and offline retail sales amount, and avoid the endogenous problems caused by using the Multivariate Consumption Model, the essay applies the Grey System Theory that is appropriate for analyzing data of ‘small sample’ and the analysis method of T correlation degree to calculate on the relation degree of online and offline retail sales amount. I set $x_1$ as the reference sequence to represent the offline retail sales amount of each year for one country, and set $x_2$ as the comparison sequence to represent the online retail sales amount of each year for one country. Two original time series are calculated as $x_1 = \{x_1(t_1), x_1(t_2), \cdots, x_1(t_n)\}$, $x_2 = \{x_2(t_1), x_2(t_2), \cdots, x_2(t_n)\}$ in the range of $[t_1, t_n]$, in which the number of periods is set as $n$. Based on the improvement of Tang Wuxiang[22] upon the Grey Relational Analysis, the basic calculation of analysis method of T correlation degree is as follows.

1) Standardization gives comparability to the value of each sequence

$$D_1 = \frac{1}{n-1} \sum_{k=2}^{n} |x_1(t_k) - x_1(t_{k-1})|$$

$$D_2 = \frac{1}{n-1} \sum_{k=2}^{n} |x_2(t_k) - x_2(t_{k-1})|$$

2) Seeking standardization sequence

$$y_1 = \{x_1(t_k) / D_1, k = 1, 2, \cdots, n\}$$

$$y_2 = \{x_2(t_k) / D_2, k = 1, 2, \cdots, n\}$$

3) Seeking increment sequence

$$\Delta y_1 = \{\Delta y_1(t_k) = y_1(t_k) - y_1(t_{k-1}), k = 2, 3, \cdots, n\}$$

$$\Delta y_2 = \{\Delta y_2(t_k) = y_2(t_k) - y_2(t_{k-1}), k = 2, 3, \cdots, n\}$$

4) Calculating on the relation coefficients of each time span

$$\xi(t_k) = \left\{ \begin{array}{l}
\text{sgn}(\Delta y_1(t_k) \cdot \Delta y_2(t_k)) \cdot \frac{\min(|\Delta y_1(t_k)|, |\Delta y_2(t_k)|)}{\max(|\Delta y_1(t_k)|, |\Delta y_2(t_k)|)} \\
0 \quad (\text{if} \Delta y_1(t_k) \cdot \Delta y_2(t_k) = 0) 
\end{array} \right.$$ 

5) Calculating on the correlation degree

$$r(x_1, x_2) = \frac{1}{n-1} \sum_{k=2}^{n} \Delta x_k \cdot \xi(t_k)$$

After calculation, China’s correlation degree (Rchn) is -0.20, America’s correlation degree (Rusa) is 0.23 and Australia’s correlation degree (Raus) is 0.31. The above shows that China’s online and offline retail business have negative substitution effect, and the online and offline retail business have positive mutual promotional effect, and their e-commerce has positively promoted the development of physical business.

Why e-commerce has promotional effect to the physical sales in developed countries like the US and forms a cooperative game, but has substitution effect in China and form a zero-sum game? The following will analyze the binding agreement as one necessary condition of forming a cooperative game and discuss about the origin of the different relationship of e-commerce and physical business between China and other countries.
4. Policy System of E-commerce of China and Other Countries

E-commerce and physical business are main consumption modes of modern society, in which the social system acts as the binding agreement. From the view of new system economics, the social system can be divided into the regulation system, moral system and the implementation mechanism of system. Therefore, by focusing on the qualification of market access, taxation and cost difference, and the soft environment of market behavior supervision and business management as a reflection of the above three divisions, this essay will confirm whether the US and Australia have a different policy system from China.

4.1 Difference of market access policy of e-commerce

With reference to the access qualification of market entity, the General Administration of Industry and Commerce of China issued ‘the Interim Regulations on Network Commodity Trade and Related Service’ and pointed out that legal person or individual industrial and commercial household should publicize its business license on its website or at eye-catching position of its web page[2]; A natural person of e-commerce business should provide real name and address and other information to the third party trading platform; A qualified natural person should apply for legal industrial and commercial registration. However, in fact, mot online business individuals are not forced to finish industrial and commercial registration. For example, like Taobao, by complying with age qualification, real name certification (ID) and binding payment method, individual person can easily register and open business. With reference to the qualification of sales products, relevant standards are scattered in the regulations of online sales management issued by supervising departments of each industry and also the rules made by the website, like ‘the Interim Measures of Internet Lottery Sales Management’ issued by the Ministry of Finance in 2010, ‘the Management Measures of Internet Sales of Food and Medicine’ issued by the Food and Medicine Bureau in 2014, ‘the Rules of Taobao’ made by Taobao.com, ‘the Management Regulation of Forbidden Products of Taobao’ and ‘the Industrial Standards of Household Furniture of Taobao’. Obviously, China’s regulations of market access for online products are made by multiple departments and being loose, which hinder the effective management of government.

The US government has issued the E-commerce Law of the Federal Trade Commission in the end of 1990s, regulating that the entity individual of online market must apply for industrial and commercial registration, and clearly publicize its own industrial and commercial registration, address, telephone number and email and other tracing information on its sales web page[4-9]. Australian government regulates that enterprise and individual must finish strict registration to open online sales activity. Taking the example of C2C, individual with family address as business location must finish individual business registration at the Australian Securities & Investments Commission (ASIC) in real name or company name and pay registration fee.

4.2 Difference of taxation and cost of e-commerce

The General Administration of Industry and Commerce of China hasn’t explained the regulation that ‘qualified individual business should apply for relevant legal industrial and commercial registration’ in its ‘the Interim Regulations on Network Commodity Trade and Related Service’ issued in July 2010. Therefore, individual of online sales is not forced to comply with taxation registration[13]. As a result, the e-commerce of China is in the status of tax exemption or evasion, which not only seriously damages the fairness of taxation, but also leads to a large loss of national financial income[11].

The US and Australia insist on the neutral principle of taxation, and collect the same amount of
tax to products of both e-commerce and physical sales. The US used to apply tax exemption to e-commerce to encourage its growth in the early age, bring its online sales amount from 27.416 billion USD in 2000 to 198.573 billion USD in 2011. However, only 1% consumer paid online consumption tax in their respective states in 2012, and the total tax loss of all states reached 23 billion USD. In May 2013, the US issued ‘the Bill of Market Fairness’ to stipulate that the purchase of physical and virtual products through e-commerce must pay the consumption tax to the state government based on the taxation standards of the location of residence. The Australian government stipulates that not only the sales of physical products through e-commerce pays the 10% added value tax, but also individual online business must declare its real sales income accurately on its own and pay the income tax for individual.

4.3 Difference of implementation of e-commerce supervision

Whether the implementation of national policy is effective or not depend on the cost of violation[16]. If the violation cost is much higher than the profit, the social market order is stable, and vice versa[15]. While inspecting the e-commerce supervision system of China on the above standard, we can find that the General Administration of Industry and Commerce of China issued ‘the Interim Regulations on Network Commodity Trade and Related Service’ in May 2010 and stipulated that ‘market entity of selling fake or inferior products is imposed a fine from 50% to 300% of product value; If the gravity of circumstance rises, the business license shall be revoked. If any crime is committed, prosecution of liability shall follow; Sales of fake products is imposed a fine equal to product value or less, and if the gravity of circumstance rises, the business license shall be revoked.’ In January 2015, ‘Opinions on Strengthening and Standardizing Inspection and Sample Testing of Quality of Network Traded Commodities’ was issued and stipulated that ‘industrial and commercial department has the right of ordering online market entity to cease its sales of unqualified products, or ordering the third party online platform to delete the information, block or even cut the link of its online stores.’ However, the implementation of the management policy is less effective. The e-commerce market is still filled with a large number of fake and inferior products. According to the random inspection of the General Administration of Industry and Commerce, certified online product rate in 2014 was only 58.7%, and the qualification rate of selected on-line products was only 71.3% in 2015. Obviously, the reason for the above situation is that the profit is much higher than the violation cost in the e-commerce market of China[18].

In order to restrict the opportunism and better implement the supervision policy, the US and Australia both launch e-commerce supervision regulations of ‘Strict Inspection and Heavy Penalty’. The US stipulates that product of e-commerce must comply with ‘the Safety Law of American Consumers’ and receive relevant certification paper; Market entity must comply with ‘the Law against Fake Labels of 1984’, and ‘the Law against Counterfeit End Products of 1996’ and ‘the Protection Fee of Consumers against Fake Products’; Anyone with sales of fake and inferior products must be sentenced a 5-10 year imprison and a penalty of 500 thousand USD[10]. If any violation of regulation is found in online store by third party online platform, the store must be offline and close its sales pages, and must bear the joint and several liabilities in the case of intentional violation. From the 1960s, one by one, the Australian government issued ‘the Copy Right Protection Law of 1968’ and ‘the Label Protection Law of 1995’ and stipulated that online sales product must have business license and provide product safety certificate of complying with national safety standard or industrial standard. Market entity of any unauthorized usage or counterfeit label must be sentenced a five-year imprison and a penalty from 99 thousand to 117 thousand Australian dollar.
4.4 Difference in soft environment of e-commerce business

The soft environment of e-commerce refers to the influence of social customs and habits to the implementation of e-commerce supervision policy. The fast growth of China’s e-commerce market and weak supervision system lead to the large expansion of individual opportunism. The opportunism can play a role of online creation and bring new opportunities, but generate outer negative effect, such as the frequent dishonest cases in China like the online fraud. The Chinese government has made relevant supervision policies but the implementation effect is less optimistic. Compared with developed countries like the US, Australia and Korea, Chinese residents have weak respectful awareness to policy, and tend to find flaws in the system and make use of them to achieve the most personal interest; They apply double standards to the policies and use rules and regulations to restrict others, not themselves; They follow rules when it is on their interest and refuse to observe rules when it is against their interest, hoping to set themselves away from rules. Under the influence of such motive, policies fail to function in the end[25].

As a result of the direct and indirect influence of the economic development level and religion, the residents of the US and Australia demand more for their personal behavior. Most behaviors restricted by binding force in China have already become self awareness in developed countries. People tend to put their effort from finding flaws in the system to raising their work efficiency. Therefore, self discipline restrains the expansion of individual opportunism and lowers its outer negative effect, which largely lowers the trading cost of the whole society and at last benefits each resident with a favorable social environment.

5. Strategies on Supervision and Administration of E-Commerce of China

According to the above analysis, we can find that in developed countries, with the basis of a long-standing and positive environment of informal system, application of formal system has effectively restricted the behavior of market entities, regulated market relationships and reduced transaction costs amongst enterprises. While improving efficiency of operations of e-commerce and physical business, it also helps build a fair competition environment. Hence, facing the fact of the weak supervision system and lack of fairness in the market, China should formulate related control measures on e-commerce around the 2 focuses - system implementation mechanism and balance of efficiency and fairness.

5.1 Reinforce the implementation of e-commerce system

Based on the 2 regulations - ‘Interim Regulations on Network Commodity Trade and Related Service’ and ‘Opinions on Strengthening and Standardizing Inspection and Sample Testing of Quality of Network Traded Commodities’, the e-commerce supervision regulations should be elevated to legislative level while standards for market access, responsibility and liability of market entities and punishment measures of e-commerce market should be specified and refined in legislation form. As the market share of third-party network platform in China is extremely high, e.g., user coverage of Taobao and Tmall already up to 85.18% and 70.50% respectively, supervision on third-party online platform and specification of their scopes of joint and several liabilities should be introduced in legislation. Meanwhile, as the traditional social behaviors and negative practices relating to the moral system is not expected to be changed in short term Therefore, from the legal aspect, we should increase the intensity of punishment on acts that violate the e-commerce market order or acts of selling fake commodity on network platform. With the increase of violation cost by increasing penalty, making cost of individual opportunism much higher than profit, it would enable the development of an organized and orderly e-commerce market through such system.
5.2 Establish E-commerce taxation system

In e-commerce market, by focusing on the neutral principle of taxation, levying taxes on online commodity and adjusting benefits and social welfare generated from all channels with the redistribution role of taxation, a fair competition environment can be established. First of all, in the course of taxation system formulation on e-commerce, tax registration system on e-commerce should be standardized. We can refer to the current standards of physical business and require online enterprises and individuals to apply for business registration at Administration for Industry and Commerce and Tax Bureau, and to publicize their tax registration number on their web page. Meanwhile, third-party online platform should be authorized to conduct check on taxation registration and suspend or terminate the sales links of related market entities if necessary. Secondly, applicable categories of taxes shall be defined on e-commerce. Taking the neutral principle of taxation as the core, it is not necessary to set new standards on e-commerce taxation, yet we only need to levy tax on e-commerce in compliance with the current regulations on commodity categories, procedures, time and venue of taxation of physical business. For C2C e-commerce with tax loophole, we may refer to the requirement of ‘verifying the business amount or income revenue in certain business venue, period and scope of individual business entities, and taking the above mentioned as taxation basis to levy the value-added tax’ in ‘the Measures for Administration of Tax Collection at Regular Intervals in Fixed Amount for Individual Business Entities’, and take the fund transaction on third-party online platform as tax basis to make tax declaration and payment to tax authority accordingly. Thirdly, we should take the location of consumer as the basis of assessment. As taking the location of consumer as the standard for jurisdiction improves efficiency when solving conflict on jurisdiction problem of e-commerce taxation, countries including US, EU, Australia, New Zealand, Japan, South Korea, India, South Africa, etc. adopt taxation at the principle of location of consumer. Hence, China may also refer to the international criteria to define the taxation principle of e-commerce. Lastly, we should define taxation product scopes. Taxation scopes of on-line products in the US, EU and South Korea include physical products and virtual products. As of now, China has no taxation standard upon on-line virtual products. Therefore, we should expand the taxation scopes on e-commerce commodities, and establish a taxation system that is in compliance with its future development.

Acknowledgments

Key Project of Philosophy and Social Sciences of Educational Mmination(16JZD018) “Research on fostering and building powerful country with international competitive advantage”. The "13th Five-Year plan" of philosophy and Social Sciences in Guangdong (GD16XYJ08) “Research on the effect of E-commerce and the effect of regional differences”.

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