Reform and Development of Basic Telecom Service Industry in China and Its Evaluation: A Perspective of Technological Progress

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Keywords: Telecom Service Industry, Reform, Evaluation.

Abstract: Basic telecommunications service industry has become one of the most essential basic industries, it reflects a country's competitiveness and innovative capacity. China has the largest telecommunications market over the world, but compared with the development level of the telecommunications industry in most other countries, China's telecommunications technologies are relatively low and the comprehensive development level of Chinese basic telecommunications service industry is also relatively poor. The purpose of this paper is to carry on a comprehensive combing to the reform and development of the basic telecom service industry in China, and evaluate the results of the reforms from a perspective of technological progress. In the last part of this paper, we provide several policy suggestions to the next step of telecommunications regulation in China.

1 INTRODUCTION

With the strategic significance and natural monopoly, the basic telecommunications service industry has been subject to strict regulations by nearly all the countries in the world since its initial formation. However, as the telecommunications technologies have advanced significantly in recent decades, basic telecom service industry has been integrated into the daily life of the public nowadays, and its natural monopoly is disappearing gradually (Crawford, 2013). Therefore, since the 1980s, the world has started an upsurge of regulation reforms in the telecom industry.

Since the Reform and Opening-up in 1978, China has actively seized the opportunities brought by emerging technologies, which made China achieve outstanding economic performance in the past three decades. China's annual per capita GDP increase rate achieved more than 8% in the past 38 years (1978-2015), it has transformed itself from a backward agricultural country into the world's second largest economy. In the year of 2014, the total volume of telecommunications service of Chinese basic telecommunications industry achieved 1814.95 billion RMB (Association, 2015). However, the informatization index of China was only 0.4351 in 2014, it was ranked 88th in the world and below the average value of 0.5494, which is in marked contrast to China's economic status in the international community (Zhang, 2015). Starting from 2014, the basic telecom service industry in China has happened a series of regulation events, including the introduction of virtual telecom operators, the intention of the fourth restructuring and further relaxing price regulation. All of which indicate that Chinese government has formed the idea of relaxing regulations in the telecom industry. However, the gap between Chinese telecom industry and that of developed countries is still wide, based on this, this paper carries on a comprehensive combing to the reform and development of the basic telecom service industry in China, especially the industry restructuring of telecom business, then summarize current situation of the basic telecom service industry in China and evaluate the results of the reforms from a perspective of technological progress, finally provides several policy suggestions to the next step of telecommunications regulation.

Since 1994 when China Unicom was founded, the structural regulations have been the seemingly effective regulatory means of Chinese telecom regulators. Under the infulence of structuralism and overseas telecom restructuring experience, the development and reform of the basic telecom

Lin X., Chen X. and Lu T.
Reform and Development of Basic Telecom Service Industry in China and Its Evaluation: A Perspective of Technological Progress.
DOI: 10.5220/0006443700580062
In *ISME 2016 - Information Science and Management Engineering IV (ISME 2016)*, pages 58-62
ISBN: 978-989-758-208-0

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industry in China mainly depend on introducing market rivals by splitting and restructuring the telecom operators expecting to form a marketing structure of effective competition. The changes of Chinese basic telecom service industy have attracted many researchers' attention. Gao and Lyytinen studied the evolution of the regulation reform of Chinese telecom industry, and discovered that China's telecom reform was a "try firstly and implement afterwards" reform which was carried out in the macro background of Chinese economic reform, while other countries carried out regulation reform firstly and then the regulations guided the market reform. China's telecom regulation was relatively poor, which put a restriction on the development of the telecom market development (Gao and Lyytinen, 2000). Loo also studied the development of the telecom industry in China, and indicated the reform of Chinese telecom industry was the result of the balance between various factors (Loo, 2004). Li did a research on the regulation situation of Chinese telecom industry and its efforts on anti-monopoly, by analysing the difference of the modes of telecom industry regulation between China and OECD countries, he indicated independent regulation institution plays a critical role in the regulation reforms (Li, 2011).

2 DEVELOPMENT AND RUGULAITON REFORM PROCESS OF CHINESE TELECOM INDUSTRY

2.1 Natural Monopoly Regulation Period (before 1994)

Before 1994, China's basic telecom service industry was in the condition of "integrated government function and enterprise management", Chinese government was not only the operator of the telecom industry, but also the manager of the industry. In the early formation of Chinese telecom industry, the investment was totally from the government, so the industry form a monopoly condition which integrated with natural monopoly and administrative monopoly. In fact, the posts and telecommunications industry during this period had not formed the marketing management, the posts and telecommunications services were just national facilities which served the information transmission between party, government, and military institutions at all levels, there was little opportunity for individual consumers to have direct access to telecom services. After the Reform and Opening-up in 1978, Chinese economy developed rapidly, while the low telecom technologies and the poor service level became the bottleneck of restricting economic growth. Therefore, Chinese government set out policies of giving priority of developing telecom industry. According to the characteristics of the high-tech, high input for telecom industry, government carry out diversified investment, surrendering part of the profits to the telecom industry, higher prices and other policies to make sure the financial support for the telecom infrastructure construction and technical upgrading.

However, the rapid development of Chinese telecom industry over this period was not a benign process of economic growth, but seizing high profits to obtain high development speed using monopoly position, which could not be persistent in the market economy. With the notable expansion of market and huge increase of demand, the inherent problems of "integrated government function and enterprise management" became increasingly serious, the operational efficiency of telecom industry during this period was quite low and its technical progress rate did not improve notably.

2.2 Introduction of Preliminary Competition, Separation of Government and Enterprise (1994-1998)

For a long time, the poor quality of telecom services and high price were complained by consumers, and the constraint of telecom industry on economic development failed to be mitigated, Chinese government started to carry out real implementation of structural adjustment measures on the telecommunications market. In July 1994, China Unicom was founded, and it was the second telecom operator which ran basic telecom services. After China Unicom participated in the competition of basic telecom service industry, the pace of technical progress was accelerated, and the efficiency of the telecom market was improved, primarily manifested as: (1) the price level of telecommunication services dropped sharply; (2) because the telecom industry was no longer an absolute monopoly business structure, telecom operators were forced to continuously improve their service level; (3) technological progress made terminal and phone number separated, the sale of telecom terminals no longer needed to bundle with network resources.

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The foundation of China Unicom made Chinese basic telecom service industry transform from monopoly to preliminary competition. However, "integrated government function and enterprise management" hampered the industry development, so separating government function and enterprise management became an inevitable choice. In 1998, Chinese telecom industry separated government function and enterprise management and lifted restrictions gradually. During this period, although the industry developed rapidly through introducing competition, China Unicom was not comparable with China Telecom in terms of the size of assets and market share, the market structure and nature of monopoly of telecom industry did not changed essentially. Specifically, the paging service and mobile communication developed rapidly in China over this period, but the development of China Unicom's mobile service was relatively slow, the market share of China Unicom only accounted for 5% of the whole mobile communication market, which means it could not pose a credible threat on China Telecom. So it was inevitable to plan to split and restructure the telecom operators.

2.3 First Splitting and Restructuring, Monopoly to Competition Transformation (1999-2001)

In 1999, Chinese Ministry of Information Industry decided to implement the splitting and restructuring of Chinese telecom operators. The original China Telecom was split into China Telecom, China Mobile and China Satcom. And the splitting was a kind of services splitting, the paging service of original China Telecom was integrated into China Unicom, the mobile communication and satellite communication services left in charge of China Mobile and China Satcom respectively. Besides, China Netcom, China Railcom, China Jicom entered the telecom market one after another. Chinese telecom industry formed the competitive situation of seven telecom operators. The business focus of all operators during this period are listed in Table 1.

Table 1: The business distribution of telecom operators

Telecom operator	Business focus
China Telecom	Fixed networks and personal handyphone system (PHS)
China Mobile	GSM network
China Unicom	Full-service (fixed networks, GSM, CDMA, etc.)
China Netcom	Fixed networks and personal handyphone system (PHS)
China Jicom	Fixed networks
China Railcom	Communication service along the national railway network
China Satcom	Communication and broadcasting services in satellite space segment

2.4 Second Splitting and Restructuring, Further Breaking the Monopoly (2002-2007)

The purpose of the first splitting and restructuring in 1999 is to carry out fair competition between multiple operators in Chinese telecom market, but China Telecom still had absolute advantage in the services of fixed line telephone, long-distance telephone and internet. So in order to form effective market structure, Chinese government split China Telecom again in 2002, this time the splitting was a kind of region splitting, namely, China Telecom was north-south split into new China Telecom and China Netcom (Netcom serving the Northern provinces; Telecom serving the southern provinces).

After this splitting and restructuring, there were at least two operators in the basic telecom services of international, long-distance, local, mobile, data and line rental, forming the duopoly market structure.

However, the splitting and restructuring this time left large problems, which foreshadowed the unbalanced market development in a few years. There were two main reasons: (1) the splitting this time was a restructuring that is according to the scope of region, it was still service exclusive operation or region exclusive operation in main telecom areas including long-distance telephone, fixed line telephone and mobile telephone services, which meant that it did not form effective competition essentially; (2) the policymakers neglected the factor of technological progress, and did not consider the rapid expansion of the scale of mobile communication market, which leaded to the unique outshining and market dominance of China Mobile in the next few years.

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2.5 Third Splitting and Restructuring, Three Islands of Stability (After 2008)

With the rapid development and popularity of mobile communication technologies, and due to the factor of the issuance of third-generation mobile licenses, the original telecom market structure was forced to make new adjustments. In 2008, the operating revenue of China Mobile accounted for nearly 50% of the whole market, and the net profit of China Mobile was almost twice the sum of the figure for China Unicom, China Netcom and China Telecom. In order to break the imbalance of market due to the dominance of China Mobile, making use of the opportunity of issuing third-generation mobile licenses, Chinese government restructured the telecom market once again. China Telecom acquired the CDMA network of China Unicom, China Unicom merged with China Netcom to form the new China Unicom, the basic telecom service of China Satcom was incorporated into China Telecom, China Railcom was incorporated into China Mobile. Six telecom operators were restructured into three operators, namely China Mobile, China Telecom and China Unicom. Each operator got one 3G license, each one adopted different 3G technologies, and full-service operation mode was carried out. This new kind of splitting and restructuring and full-service operation mode is to strengthen the competition and avoid the continuation of the market dominance of China Mobile. However, eight years has passed so far, there is no essential change in the competition structure in terms of market share. China Mobile still command a strong dominance in terms of the number of new users and total revenue. As is shown in Table 2 and Figure 1, the total revenue and EBITDA profit of China Mobile are both exceed the sum of the figure for China Telecom and China Unicom, the number of 4G users of China Mobile is approximately three times the sum of other two operators.

Table 2: The comparison of three telecom operators in terms of the state of operation in 2015

Telecom operator	4G technology	Total Revenue (billion RMB)	EBITDA Profit (billion RMB)	4G user (million)
China Mobile	TD-LTE	668.34	240.03	312
China Telecom	FDD-LTE	277.05	94.11	58.5
China Unicom	FDD-LTE	331.2	87.78	44.16

Data source: the annual reports of three operators in 2015

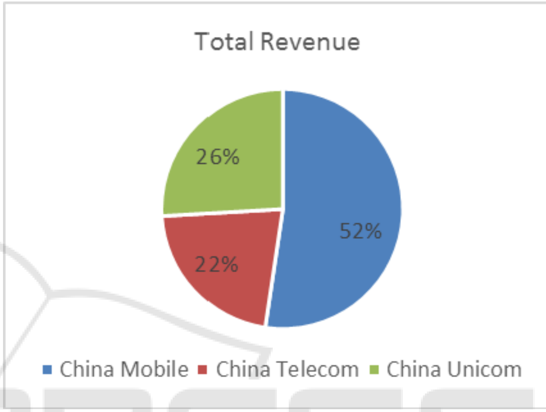

Figure 1: The comparison of three telecom operators in terms of the total revenue in 2015

3 CONCLUSIONS AND POLICY SUGGESTIONS

This paper analyses the development process of Chinese basic telecom service industry, studies the evolution route of regulation of Chinese telecom industry, and comments on the structural regulations of the industry. Through summarizing the reform process of Chinese telecom industry, it is easy to discover that until 2008 when the third splitting and restructuring was implemented, the main tool of market regulation is directly changing the industry structure by administrative means, in the hope of creating a balanced market competition structure and realizing effective competition. We believe all previous regulations of Chinese basic telecom service industry is a kind of structural regulation with the following characteristics: (1) telecom enterprises maintain state-owned enterprise character all the time; (2) the regulation institution of telecom industry is non-independent, the regulation system is multiparty regulation; (3) the

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incentive regulation adopted is price-cap regulation which is the single incentive regulation; (4) strictly limiting private capital to enter the telecom industry, there is no real withdrawal mechanism; (5) lacking endogenous technological innovation incentive.

In fact, the adjustment of market industry is not only the only means of creating effective competition. Government can improve and create a favourable regulatory environment to encourage technological innovation. Through technological innovation, the costs of telecom services can be decreased, and the telecom industry can be boosted to develop in the direction of the higher level of technologies. Based on this, from the perspective of latest theory of government regulation, we propose several policy suggestions to the next step of telecommunications regulation in China:

- Set up perfect legal system of telecom industry. During the reform of telecom industry regulations, China has not promulgated specialized telecom laws for so long, it is difficult to adapt to the rapidly ever-changing industrial environment by still using the "Telecommunications Regulations" issued in 2000.
- Set up independent regulation institution. Establishing independent regulation institution is the main method of telecom regulation in most countries. Independent regulation institution has stronger specialized knowledge, which can be beneficial to maintaining fair and independent regulatory status and reducing the transaction costs.
- Carry out the separation of network management and service provision. The separation of network management and service provision is the development trend boosted by technological innovation and economic law, it can promote competition, avoid excessive investment and repeated construction.
- Propel the reform on the mixed ownership of Chinese state-owned telecom enterprises, introduce the multiple capitals. The three telecom operators in China at present have gone public, but they still maintain the dominance of state-owned shares, and still adopt the state-owned management pattern now. The basic telecom service industry has the industrial characteristic of technology-driven and innovation-driven, but the nature of state-owned enterprise is the main reason for restricting the technological innovation of telecom enterprises.

ACKNOWLEDGEMENTS

This paper was supported by Major Program of the National Social Science Foundation of China under Grant No.15ZDB154.

REFERENCES

ASSOCIATION, C. C. 2015. *2014~2015 Analysis Report on the Development of Chinese Communication Industry*, Posts & Telecom Press.

CRAWFORD, S. P. 2013. *Captive audience: The telecom industry and monopoly power in the new gilded age*, Yale University Press.

GAO, P. & LYYTINEN, K. 2000. Transformation of China's telecommunications sector: a macro perspective. *Telecommunications Policy,* 24**,** 719-730.

LI, Y. 2011. The competitive landscape of China's telecommunications industry: Is there a need for further regulatory reform? *Utilities Policy,* 19**,** 125-133.

LOO, B. P. 2004. Telecommunications reforms in China: towards an analytical framework. *Telecommunications Policy,* 28**,** 697-714.

ZHANG, X. 2015. The Development Report of Global Information Society 2015. *Electronic Government***,** 2-19.

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